

ECONOMIC DEVELOPMENT AND CULTURAL CHANGE

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A Selected and Annotated Bibliography on Economic Development, 1953-1957

FRANK N. TRAGER 257

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RESEARCH CENTER IN ECONOMIC DEVELOPMENT AND CULTURAL CHANGE

THE UNIVERSITY OF CHICAGO

ECONOMIC DEVELOPMENT AND CULTURAL CHANGE

A journal designed for exploratory discussion of the problems of economic development and cultural change. Preliminary versions of research findings and research hypotheses are welcomed in the interests of provoking constructive and fruitful discussion.

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A SELECTED AND ANNOTATED BIBLIOGRAPHY
ON
ECONOMIC DEVELOPMENT, 1953-1957

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INTRODUCTION

Four years ago, shortly after returning from a Point Four tour of duty in Burma, I offered a graduate seminar on economic development and public policy. The literature on the theory and practice of development had already grown to sizeable proportions. A number of bibliographies had appeared, including one compiled by Arthur Hazlewood which offered a "Reading List" of 623 items "mostly published between 1930 and the end of 1953." Several of the students of the first and subsequent seminars and I undertook to "maintain" from 1953 a bibliography on an annual basis.¹ We confined ourselves to world-wide writings in English. Originally, we included Governmental and United Nations publications.

If at the beginning I had envisioned the thousands of entries (in triplicate) which piled up in my office and at home I would have immediately desisted. However, this singular lack of imagination and the growing mounds were arbitrarily ended in the early months of 1957 when my colleagues and I called a halt and proceeded to the editing task.

The following policies were adopted:

1. To annotate, in the main, descriptively all items included in the final listing.
2. To list only such books, other separates, and articles which in our judgment displayed professional competence.

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1. Costas Alexandrides, Peter Brison, Anton Bizub, Robert Cooper, Lottie Rausa, Madeline Tress, S. George Walters, among others, should be mentioned here.

3. To select articles primarily from the professional journals, not exclusively economic in character.
4. To omit publications of the United Nations and its organs because such items have already found their way into UN published bibliographies (see below).
5. To omit official governmental publications. For the United States relevant items are for the most part included in the lists compiled quarterly in Foreign Affairs. Government publications presented problems of volume and substance which we believed would unduly complicate our self-limited task and perhaps detract from what, we trust, will be a service to the profession.
6. To classify an entry according to what we determined was its major theme. The system adopted appears in the table of contents. It varies from that adopted by Hazlewood. We tried his but found our own more suitable.

The following list of bibliographies may be helpful. We have learned from each of them.

U. S. Department of State, Division of Library and Reference Services: Bibliography No. 54, Point Four, A Selected Bibliography of Materials on Technical Cooperation with Foreign Governments, Washington, D. C., Nov. 15, 1950.

Bibliography No. 55, Point Four, Latin America and European Dependencies in the Western Hemisphere, A Selected Bibliography of Studies on Economically Underdeveloped Countries, Washington, D. C., Dec 1, 1950.

Bibliography No. 56, Point Four Near East and Africa, A Selected Bibliography...Countries, Washington, D. C., January 2, 1951.

U. S. Department of State, External Research Staff, Office of Intelligence Research: Economic Problems of Underdeveloped Areas, Washington, D. C., March 1, 1956. A report on published research and work in progress between January 1950 and December 1955.

(None of the foregoing are annotated or numbered.)

United Nations Headquarters Library, Bibliographical Series No. 6: Bibliography on Industrialization in Under-Developed Countries, Sales No.: 1956, II B. 2. A three-part bibliography (of 2290 items, not annotated) of Publications of the UN and the Specialized Agencies, Other Publications and Unpublished Research. In it will be found reference to other bibliographies (p. vii and p. 181). In an earlier version of this bibliography, E/2538, March 29, 1954, there is a reference (p. 75) to S. C. Gilfillan and A. B. Stafford, "Social Implications of Technical Advance", an annotated bibliography, Current Sociology, Paris, Vol. 1, pp. 211-266, 1953.

UNESCO: Assistance to Under-developed Countries, An Annotated Bibliography, prepared by Jean Viet, International Committee for Social Sciences Documentation, SS/CH 8 AF, Paris, 1957 (838 items).

Arthur Hazlewood: The Economics of 'Under-Developed' Areas, An Annotated Reading List of Books, Articles and Official Publications, published for the Institute of Colonial Studies, Oxford University Press, London, 1954 (623 items).

A number of the books noted in our bibliography contain useful bibliographies, e. g.:

Charles Wolf and S. C. Sufrin: Capital Formation and Foreign Investment in Underdeveloped Areas, Syracuse University Press, 1955, pp. 69-117, for problems connected with financing development.

We have numbered our items consecutively and have supplied a table of contents, a list of abbreviations used for journals, and as an appendix an alphabetical list of authors with their appropriate item numbers.

Frank N. Trager

LIST OF JOURNAL ABBREVIATIONS

Note: This is not a complete list of the journals covered. Those appearing infrequently were not abbreviated.

AA - Asian Affairs

AER - American Economic Review

Annals - Annals of the American Academy of Political and Social Science

CJEPS - Canadian Journal of Economic and Political Science

EDCC - Economic Development and Cultural Change

EEH - Explorations in Entrepreneurial History

EKI - Ekonomi dan Keuangan Indonesia

EI - Economia Internazionale

EJ - Economic Journal

FES - Far Eastern Survey

IEJ - Indian Economic Journal

IJE - Indian Journal of Economics

IER - Indian Economic Review

JEH - Journal of Economic History

JIA - Journal of International Affairs

JPE - Journal of Political Economy

MEJ - The Middle East Journal

PA - Pacific Affairs

QJE - Quarterly Journal of Economics

SR - Social Research

WA - Weltwirtschaftliches Archiv

CLASSIFICATION OF ENTRIES
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I. Country and Area Studies

- ✓ 1. Abbas, S. A., Capital Requirements of South and South East Asia, New York, Gregory Lounz, 1956, pp. 151.
Provides comparative indices intended to delineate the character of South and South East Asian economic structures. Discusses the possibilities of attaining income and employment objectives, taking into account capital supply and capital requirements.
2. Adler, J. H., et al., Public Finance and Economic Development in Guatemala, Palo Alto, Stanford University Press, 1953, pp. 282.
An analysis of the fiscal structure of Guatemala and how the fiscal system of the country can contribute most to its economic development.
3. Allbaugh, Leland G., Crete: A Case Study of an Underdeveloped Area, Princeton, N. J., Princeton University Press, 1953, pp. 572.
The result of an intensive four-year study sponsored by the Rockefeller Foundation, to ascertain what kind of information is required in preparing development policy and plans. Provides a study of the social and economic character of Crete and its problems.
4. Apter, D. E., "Some Economic Factors in the Political Development of the Gold Coast", *JEH*, Vol. XIV, No. 4, pp. 409-427.
Can a democracy organize a rapid development of the economy? Land, labor, and capital in the Gold Coast present problems which demand concerted parliamentary action. Economic and political development are held to complement each other.
5. Apter, D. E., The Gold Coast in Transition, Princeton, Princeton University Press, 1955, pp. 355.
A study in the adaptation of parliamentary institutions to the problem of cultural and social integration of a new society.
6. Arndt, H. W., "Economic Development: Some Lessons of Australian Experience", *WA*, Vol. 73, pp. 162-170.
Australia is used to illustrate problems of economic development in two ways: by drawing on her historical experience, especially during the 19th Century, and by considering the problems which her development program is meeting today. It is pointed out that Australia must be included among those nations to which capital and labor migrated together. Also, of all countries which developed during the 19th Century, Australia enjoyed the most intense degree of government intervention and initiative.
- ✓ 7. Baldwin, George, "Public Enterprise in Indian Industry", *PA*, Vol. XXX, No. 1, pp. 3-21.
Public investment under the first and second plans is outlined and the significance for the development aspirations discussed. The public enterprise is here described as a source of development initiative.
8. Balogh, Thomas, "The Challenge of Totalitarianism in Asia", International Affairs, Vol. 31, pp. 300-310.
In comparing the planning efforts of India and China, it is maintained that India can hardly hope to equal the rate of development in China. The advantages of China's totalitarian regime for economic development are

evaluated. In order for India to match the all-pervading investment program of China, a general adoption of investment controls and tax concessions is advocated. The author expresses fear that the successes of totalitarian China may influence the political fate of democratic India.

9. Banks, A. Leslie, ed., The Development of Tropical and Sub-Tropical Countries, with Particular Reference to Africa, New York, St. Martin's Press, 1954, pp. xvi + 217.

Report of the proceedings of a seminar held at Caius College, July 1953. Papers on the development of Africa: problems of power and water, food production, health, wealth, and education, "possible lines of action", problems of colonial administration, race relations, and the nature of self-expression in government.

10. Blanksten, George I., "Technical Assistance and the Political Instability of Latin America", *EDCC*, Vol. II, No. 5, pp. 350-356.

Political instability in Latin America and its effect upon technical assistance programs are explored. An association is made between moving from an "underdeveloped" state to an "advanced" one and "real revolution". The possibility of technical assistance contributing to and hastening "real revolutions" in underdeveloped countries is suggested.

11. Britnell, G. E., "Factors in the Economic Development of Guatemala", *AER*, Vol. XLIII, No. 2, pp. 106-114.

A discussion of the obstacles to capital formation and investment with emphasis on political instability, bias toward labor in disputes with management, alternative investment opportunities for speculation, mortgages, and trade.

12. Brown, W. A., ed., "Contemporary Africa--Trends and Issues", *Annals*, Vol. 298, 1955, pp. 1-179.

Articles on: (1) the environment, the people and their cultures, and the continent's historic role in world affairs; (2) economic characteristics and problems of economic change; (3) political problems; (4) urbanization, religion, and education.

13. Buitron, Anibal, "Working Relations with National and Local Officials in Technical Assistance Programmes", *EDCC*, Vol. II, No. 4, pp. 279-285.

Based on the author's personal experience in three South American nations, a series of suggestions are offered to improve working relations between foreign experts, national and local officials, and members of the community so as to make the development effort more effective.

14. Camacho, J. A., Brazil: An Interim Assessment, New York, Royal Institute of International Affairs, 1953, pp. 116.

Touches on every aspect of the country's development problems and her experiments in the field of economics.

15. Carey-Jones, N. S., British Honduras: Pattern of a Dependent Economy, Cambridge, 1953, pp. xv + 162.

Historical and geographical survey of the country with estimates of national income from 1946. The program of economic development and the relationship between economic and political change in colonial areas.

16. Carlson, Sune, "Latin America: Recent Developments, Obstacles to Development, and Potentials", AER, Papers and Proceedings, Vol. XLVI, No. 2, pp. 419-424.

A summary of some of the material concerning recent economic and social development in Latin America. The author finds development potentials in this area better than in most.

17. Chao, Kuo Chun, "Agricultural Laborers in India", FES, Vol. XXVI, No. 2, pp. 24-31.

The problems of agricultural laborers in India are described. Three suggestions to aid the laborers are put forth: development of rural economies as a whole; development of secondary and tertiary industries; self-help, through education, etc.

18. Choudhry, N. K., "A Note on the Dilemma of Planning Population in India", EDCC, Vol. IV, No. 1, pp. 68-81.

Trends of population growth are projected into the future and are examined in the light of alternative development goals and resource allocations.

19. Clapp, Gordon R., "Iran: A TVA for the Khuzestan Region", MEJ, (Winter 1957), pp. 1-11.

The author, former chairman of the board of directors of TVA, relates the efforts being made by a private American corporation, in association with the Iranian government, to develop the Khuzestan region of S. W. Iran.

20. Clough, Shepard B., and Livi, Carlo, "Economic Growth in Italy: An Analysis of the Uneven Development of North and South", JEI, Vol. XVI, No. 3, pp. 334-349.

A study of the uneven growth in North and South Italy; differences examined; tables.

21. Crane, R. I., "Strata Disruption and Social Change in South Asia", United Asia, Vol. VI (Nov. 1954), pp. 228-235.

The character of the change that has taken place, and is taking place, in South Asia is examined. The various disrupting forces of colonialism and current effects of industrialization and urbanization are discussed. Some effort at describing and estimating the direction that future change may take is included.

22. Donnithorne, A. G., "Western Business in Indonesia Today", PA, Vol. XXVII, No. 1, pp. 27-40.

Indonesia's need for capital and skills and the environment for private international investment are discussed. The general conclusion is that Indonesia offers meager prospects to the foreigner.

23. Dorfman, Adolfo, "The Role of Development Corporations Financing Economic Development in Latin America", Caribbean Economic Review, Vol. V, Nos. 1 and 2, pp. 19-23.

The goals and operations of various development corporations in Latin America are described. The merit of these organizations is seen to lie in contributing toward more effective and balanced development of a nation's resources. However, it is noted, the role of these corporations in Latin America has been of varying significance.

24. The Economic History Association, "The American West as an Underdeveloped Region", JEH, Vol. XVI, No. 4, pp. 449-589.

The theme of the meeting, September 1956, was the analogy between the United States of an earlier period and the underdeveloped nations of the present day. Following topics:

- (1) "American Development Policy: The Case of Internal Improvements", Carter Goodrich.
- (2) "National Policy and Western Development in North America", Vernon C. Fouke.
- (3) "When the Pound Sterling Went West: British Investments and the American Mineral Frontier", Clark C. Spence.
- (4) "International Capital Flows and the Development of the American West", Douglass C. North.
- (5) "Promoting the American West in England, 1850-1890", Oscar O. Winther.
- (6) "Three Generations of Business Enterprise in a Mid-western City: The McGees of Kansas City", R. Richard Wohl.
- (7) "Northern Pine Lumberman: A Study in Origins and Migrations", Frederick W. Kohlmeyer.
- (8) "The Role of the Merchant on the Oregon Frontier: The Early Business Career of Henry W. Corbett, 1851-1869", Arthur L. Throckmorton.
- (9) "The Genesis of the Great Northern's Mesabi Ore Traffic", Joseph W. Thompson.
- (10) "A Comparative Analysis of Economic Development in the American West and South", Douglass F. Doud.
- (11) "The Changing Pattern of American Economic Development", Donald L. Kemmerer.

25. Eisenstadt, S. N., "Sociological Aspects of the Economic Adaptation of Oriental Immigrants in Israel: A Case Study of Modernization", EDCC, Vol. IV, No. 3, pp. 269-278.

This contains an analysis of certain aspects of some economic enterprises, mostly agricultural co-operative settlements in Israel, established by new, especially Oriental, immigrants. The author thus seeks to throw some light on the adaptability of "traditional" social groups to modern tasks.

26. Ellsworth, P. T., "Factors in the Economic Development of Ceylon", AER, Vol. XLIII, No. 2, Papers and Proceedings 1952, pp. 115-125.

After a survey of the factors peculiar to economic development in Ceylon, the author concludes that the central problem is a race between population and productivity.

27. Fliegers, Serge, "The Financing of Latin America's Economic Development", JIA, Vol. IX, No. 1, pp. 56-63.

An examination of per capita income figures in order to show the speed and force of the "continent-wide economic expansion" and the factors responsible for the changes being undergone by all the Latin countries.

28. Franck, Peter G., "Economic Progress in an Encircled Land", MEJ, Vol. X, No. 1, pp. 43-69.

A general survey on the economic progress of Afghanistan.

29. Friedmann, John R. P., "Developmental Planning in Haiti: A Critique of the U. N. Report", EDCC, Vol. IV, No. 1, pp. 39-54.

In the light of the Haiti Report, four fundamental issues of planning are probed: whose interests are relevant in recommending a course of action leading to economic development; are the proposed development measures adequate for meeting the estimated future needs of the country; to what extent is popular (local) participation in planning and project work essential to the success of induced economic development; is there an objective "structure" of economic development which must be adhered to in planning for economic development in regard to both the priorities and the geographic organization of projects.

30. Gerschenkron, Alexander, "Notes on the Rate of Industrial Growth in Italy, 1881-1913", JEH, Vol. XV, No. 4, pp. 360-375.

A description of the process of Italian industrialization before 1914 in terms of its conformity with or deviation from the "usual pattern", as established by other relatively backward European countries of the nineteenth century in the course of their industrial development.

31. Ginsburg, N. S., The Economic Resources and Development of Formosa, New York, Institute of Pacific Relations, 1953, pp. 58.

Relates the resource endowment of Taiwan and the nature of its utilization to the course of economic development pursued by the Japanese and more recently by Nationalist China. One important conclusion proposes that Japan invested very little capital in Taiwan that was of non-Taiwanese origin; another is that agricultural surpluses, made available through governmental technical assistance programs as well as resulting from strong political-economic controls, were sufficient to pay for both increasing levels of living on the island and large profits for Japanese investors. With the exception of the heavy industrial sector, post-war Chinese development programs have tended to follow Japanese precedents.

32. Hance, William A., "Economic Development in Tropical Africa", AER, Vol. XLVI, No. 2, Papers and Proceedings 1955, pp. 441-451.

The present status of economic development, together with potentialities and obstacles, are examined.

33. Hansen, Millard, and Wells, Henry, "Puerto Rico: A Study in Democratic Development", Annals, Vol. CCLXXXV, 1953, pp. 1-166.

Describes and explains the significance of developments taking place in Puerto Rico in the last twelve years. Focuses attention on political, economic, demographic, and cultural aspects.

34. Hart, Don V., "Profits and Progress in the Philippines", PA, Vol. XXVII, No. 4, pp. 353-366.

This is a review article describing the development projects sponsored by President Magsaysay. It is noted that Magsaysay regarded rural improvement of paramount importance in his administration. The projects examined have to do with malaria control, local government, rural health, land division, etc.

35. Hazlewood, A., "Trade Balances and Statutory Marketing in Primary Exporting Economies," EJ, Vol. LXVII, No. 265, pp. 74-82.

Deals with two important West African territories, the Gold Coast and Nigeria, and with Uganda, a territory in British East Africa, where statutory marketing arrangements take the form of a Cotton Lint Marketing Board and Coffee Control, each operating a Price Assistance Fund. Comparison between the foreign trade sectors of these three territories in the period before the war, under "free marketing", and in the post-war period of statutory marketing.

36. Hershlag, Z. Y., "Turkey: Achievements and Failures in the Policy of Economic Development", *Kyklos*, Vol. VII, pp. 323-351.

The first period in the essay covers from W. W. I to 1930. During those years, no real changes took place in the economic situation. Low levels of national income, insignificant national savings, and a small degree of capital saving were typical. The period of state initiative started after 1929; it was characterized by enormous efforts to industrialize the country; Five Year Plans were instituted. It is maintained that, even with many failures, the policy of development achieved some of its ends, and laid the foundation for an accelerated pace of economic development.

37. Higgins, B., "Indonesia's Development Plans and Problems," *PA*, Vol. XXIX, No. 2, pp. 107-125.

Indonesia is seen faced with two sets of fundamental economic problems: instability and poverty. The Indonesian plan is discussed and the impediments to development critically analyzed.

38. Higgins, B., *The Economic and Social Development of Libya*, New York, 1953.

Recommendations to the Libyan government for a program to raise the level of welfare within two or three decades. Industrialization should follow increases in productivity in present occupations, especially agriculture, after further study and experience have indicated which processing industries would be the most successful.

39. Hollinger, William, "The Trade and Payments Agreement Program of Indonesia", *EDCC*, Vol. IV, No. 2, pp. 181-199.

The system of trade agreements Indonesia has negotiated with its main trading partners are described. There is contained an assessment of the design of the agreements program and its impact upon trade to date. The Indonesian system of trade control is also reviewed.

40. Hoselitz, B. F., "Economic Development in Central America", *WA*, Band 76, pp. 267-308.

Examines the factors which may account for the economic backwardness of the Central American nations, and with policies which may be taken to improve the level of economic welfare in these countries.

41. Ishida, R. Y., "The Industrialization of Japan: A Geographic Analysis", *The Annals of the Hitotsubashi Academy*, Vol. VII, No. 1, pp. 61-80.

An outline of the industrialization phenomena of Japan from the geographical viewpoint, and particularly for the first half of it. A discussion of areal differentiation within Japan during the process of industrialization; changes in population, differentiated shift of croppings, and formation of industrial areas.

42. Ishikawa, Shigeru, "An Analysis of Economic Growth in China", AA, Vol. III, pp. 21-46.

An attempt is made to discover when the Chinese economy entered the process of sustained growth. Included is a discussion of why China, before 1952, could not forsake the "Statutory state". The conditions contributing to the change after 1952 are examined.

43. Islam, Nurul, "Financing Pakistan's First Five Year Plan", FES, Vol. XXVI, No. 2, pp. 17-24.

Seeks to appraise the various sources of finances contemplated for the investment program under the first Five Year Plan of Pakistan. The analysis indicates that the availability of resources, both domestic and foreign, will depend upon concerted measures in the field of fiscal, monetary, and commercial exchange policies, including some physical and price controls.

44. Iversen, Carl, assisted by Winding, P. and Rasmussen, P. N., A Report on Monetary Policy in Iraq, Copenhagen, Ejnar Munksgaard, 1954, pp. 331.

Analysis of financial aspects of the development of Iraq. Considers the problem of the modern credit policies and planning.

45. Jayatilaka, E. L. P., "Social Accounts for Ceylon", Yorkshire Bulletin of Economic and Social Research, Vol. 5, No. 1, pp. 17-37.

The study seeks to estimate the national income of Ceylon and to form some measure of the reliability of the estimate.

46. Kakuten, Hara, "Economic Development and Possibility of Trade Expansion in Southeast Asia", AA, Vol. I, pp. 24-35.

Brief survey of the factors and policies which lead either to expansion or contraction of trade in the process of economic development. It is conceded that during the stage of economic development, a country will be put in a condition of constant import excess. The author discusses means by which Japan may be able to assist the development needs of Southeast Asia; two-way trade between these nations and Japan is advocated.

47. Knowles, William H., "Social Consequences of Economic Change in Jamaica", Annals, Vol. CCCV, pp. 134-144.

Examines the social consequences of economic change and points out the causes of Jamaica's rapid post-war economic development.

48. Kreinin, Mordechai, "Controlled Inflation in Israel, 1949-54", JPE, Vol. LXIV, No. 2, pp. 111-127.

Treats the causes, dimensions, and effects of the 1949-51 inflation in Israel and studies the main features of the 1952 economic policy and its internal and external economic effects.

49. Kuznets, S., ed., Economic Growth: Brazil, India, Japan, Durham, N. C., Duke University Press, 1956, pp. 613.

A socio-economic study by the Social Science Research Council's Committee on Economic Growth. Articles under three main groupings: Economics concerned with the changes in national outputs, industrial structure, and capital accumulation; demography-trends of population and labor force; business organization-entrepreneurial roles, state's influence on economic growth and the class structure of the three societies.

50. Levy, Marion J., "Contrasting Factors in the Modernization of China and Japan", EDCC, Vol. II, No. 3, pp. 161-197.

A series of hypotheses are presented to explain the contrast in industrialization between China and Japan. Some of the problems of conversion are discussed. The paper analyzes the importance of social patterns that facilitate a continuance or institution of tight centralized controls for rapid progress toward industrialization.

51. Lewis, O., "Aspects of Land Tenure and Economics in a North Indian Village", EDCC, Vol. IV, No. 3, pp. 279-304.

This study reveals some of the key relationships between local social patterns and the land tenure system to be considered in regional action programs. The study shows that even in a small village dominated by a single caste, there is a great variation within the caste with regard to socio-economic status, land holdings, etc.

52. Lockwood, W., The Economic Development of Japan, Princeton, N. J., Princeton University Press, 1954, pp. ix + 603.

Covers the growth and structural change in Japan's economy from 1868 to 1938, and the various factors which played important roles in her development.

53. Madan, D. K., Economic Problems of Underdeveloped Countries in Asia, Bombay, Oxford University Press for Indian Council of World Affairs, 1953, pp. 290.

Discussion of the problems of Asian countries from the Asian point of view.

54. Maddox, James A., Technical Assistance by Religious Agencies in Latin America, Chicago, University of Chicago Press, 1956, pp. 139.

A description and analysis of the educational, medical, and agricultural programs of religious organizations working in Latin America.

55. Malenbaum, W., "India and China: Development Contrasts", JPE, Vol. LXIV, No. 1, pp. 1-24.

A comparison and contrast of the two economies and an analysis of their programs for development.

56. Malenbaum, W., "Urban Unemployment in India", PA, Vol. XXX, No. 2, pp. 138-150.

The different types of unemployment present in India are described. Steps for mitigating and solving the problem are suggested.

57. Marchant, Alexander, "Industrialism, Nationalism and the People of Brazil", JIA, Vol. IX, No. 1, pp. 87-92.

Discusses the "modernization" of the Brazilian economy, the unifying concept of nationalism, the cultural assimilation, and the people of Brazil, their ways and customs, which make them distinct in their national character.

58. Maung Maung, "Pyidawtha Comes to Burma", FES, Vol. XXII, No. 9, pp. 117-120.

The meaning of "Pyidawtha", or Welfare State, as a vehicle for Burmese progress is defined. The goals and mechanism of Burmese planning are explained.

59. May, Stacy (Director), Costa Rica: A Study in Economic Development, New York, Twentieth Century Fund, 1955, pp. 374.
Report of a mission sent by the Twentieth Century Fund in 1950 to assess the degree of economic development and to suggest special measures for improvement. The bulk of the report surveys the economy and economic policy, stressing resources, problems, and projects. Chapters on the country's agriculture, manufacturing, health, and welfare.
60. Mayer, Adrian C., "An Indian Community Development Block Revisited", PA, Vol. XXXX, No. 1, pp. 35-46.
It is the author's impression that, though education may remain the principal long-term problem of development, the immediate problems have more to do with personal ambitions than with technical matters.
61. Mayer, E. J. M., "Agricultural Development in Israel", Manchester School, Vol. XXIII, pp. 281-299.
The economic background of Israel is summarized and the objectives of agricultural policy are critically examined.
62. McAuly, James, "Paradoxes of Development in the South Pacific", PA, Vol. XXVII, No. 1, pp. 138-149.
The vacuum created by the imposition of western economic values and technological skills is explored.
63. McCormack, William C., "Mysore Villagers' View of Change", EDCC, Vol. V, No. 3, pp. 257-262.
Some major factors limiting change in an Indian village and some of their implications for India's program of developing all her villages are discussed. Two of the major factors impeding village improvement included the "ideal of village unity", and the presence of factionalism.
64. Moore, F. J., "A Note on Rural Debt and Control of Ceremonial Expenditure in India", EDCC, Vol. II, No. 5, pp. 408-415.
The writings about the importance of ceremonial expenditure as a contributory cause of the Indian peasants' debt burden are surveyed; and an evaluation is made of some of the organized attempts which have been made to reduce such expenditures.
65. Moore, F. J., "Land Reform and Social Justice in India", FES, Vol. XXIV, pp. 124-128.
The basic question as to whether land reforms necessarily bring economic and social justice is explored. It is noted that greater equality in land ownership is not necessarily compatible with increased agricultural productivity.
66. Morgan, Theodore, "Distribution of Income in Ceylon, Puerto Rico, the United States, and the United Kingdom", EJ, Vol. LXIII, No. 252, pp. 821-834.
The author argues that the size and distribution is more unequal in the underdeveloped areas, and that the persisting cause is immobility. He suggests that monopoly is a fact in underdeveloped areas, whereas in high income countries it is a sophisticated argument.

67. National Planning Association, Technical Cooperation in Latin America: Recommendations for the Future by the National Planning Association, Washington, National Planning Association, 1956, pp. xii + 192.

Considers the programs of various national and international agencies in Latin America. Studies cover economic development and cultural change and give recommendations on technical cooperation, administration, and policy.

68. Ornati, Oscar, "Wages in India", EDCC, Vol. III, No. 3, pp. 241-259.

Some statements on the general nature of the existing wage structure in India. The first section includes general statements as to the level of Indian wages, wage differentials, and wage changes over time; the second is a more detailed description of wages in selected industries.

69. Paauw, Douglas, "Financing Economic Development in Indonesia", EDCC, Vol. IV, No. 2, pp. 171-185.

It is contended that, during the first years of development, financing should come mainly from reduction in current consumption through fiscal measures; inflationary finance is regarded as dangerous. Less dependence upon the centralized government for tax collection and expenditures, in the case of Indonesia, is advocated. The role of foreign capital is also considered.

70. Pedler, F. J., "Foreign Investment in Western Africa", International Affairs, Vol. 31, pp. 459-468.

The sparsity of foreign capital in Nigeria, the Gold Coast, Sierra Leone, and the Gambia is attributed to the fact that these are countries of restricted opportunities and comparatively low return.

71. Peretz, Don, "Development of the Jordan Valley Waters", MEJ, Vol. IX, pp. 397-412.

Conflicting plans and negotiations on the development of the Jordan Valley waters. The complexity of the problem of administration is brought into focus--and the economic and social implications for Jordan.

72. Rao, K. Nagaraja, "Small Scale Industry and Economic Development in Indonesia", EDCC, Vol. IV, No. 2, pp. 159-170.

Some historical trends in the industrialization of Indonesia and the character of industrial planning and governmental organizations for industrialization are reviewed. The small industries program is described in reference to: rehabilitation of the Development and Training Institution; the Central Production Plan Program; the Program of Mechanization of Small Scale Industry.

73. Renne, Roland R., "Agrarian Problems and Foreign Aid in the Philippines", FES, Vol. XXII, No. 3, pp. 179-183.

Agrarian problems in the Philippines are grouped under ten major headings. The purpose of American foreign aid and impediments to its implementation are analyzed.

74. Rollins, Charles E., "Economic Development in Venezuela", EDCC, Vol. IV, No. 1, pp. 82-93.

The historical trends of Venezuelan growth are traced. The growth process is considered, with special reference to the relationship between

the different parts in the whole and the aggregate growth. It is concluded that the aggregate rate of growth is not impressive, considering the magnitude of revenues which have accrued to the country as a result of petroleum operations.

75. Rosen, George, "An Examination of Potential Long Run Industrial Development of India and China", EDCC, Vol. II, No. 5, pp. 357-370.

An aspect of the theory of international trade is applied to the problem of industrialization of India and China. An attempt is made to see where the comparative advantage of the two countries may be expected to lie. Within the framework of long term goals and possibilities, models of industrial growth under various assumptions are set up.

76. Rosen, George, "Capital Output Ratios in Indian Industry", IEJ, Vol. IV, pp. 107-121.

Summary of methodological problems and solutions, results, and suggestions for further work. Attempts to answer three questions relating to India, viz.: (1) what shifts, if any, have occurred over time with respect to the use of capital and labor in Indian industries? (2) Do firms using different factor combinations within an industry show different rates of return? (3) Do the factor combinations used reflect the apparent supply and costs of these factors in India as compared with other countries? The five industries included in the study are: cement, paper and pulp, iron and steel, cotton textiles, and sugar.

77. Schultz, T. W., "Latin-American Economic Policy Lessons", AER, Papers and Proceedings, Vol. XLVI, No. 2, pp. 425-440.

Three policy precepts representing "recent innovations" have been singled out for examination: (1) disguised unemployment; (2) top priority for industrialization; and (3) beneficent inflation. The author finds these precepts as a basis for policy questionable. He suggests a return to economic orthodoxy and more reliance on the effectiveness of central bank policy.

78. Shea, Thomas J., "Implementing Land Reform in India", FES, Vol. XXV, No. 1, pp. 1-8.

The Planning Commission's objective of attaining the aims of its land reform program in two years is examined. The author enumerates several reasons for believing it is over-optimistic.

79. Siegel, Bernard J., "The Role of Perception in Urban Rural Change: A Brazilian Case Study", EDCC, Vol. V, No. 3, pp. 244-256.

This paper consists of an analysis of the perception of new opportunities brought about by changing environmental situations: who were cognizant of them, in what ways their choice behavior was affected, and why. The central proposition is that, other things being equal, the perception of available choice behavior will be directly affected at the socio-cultural levels by status controls.

80. Spencer, Daniel L., "Foreign Participation in South Asian Enterprise", FES, Vol. XXIV, No. 3, pp. 39-44.

This article analyzes some of the efforts of "mutual participation" in South Asia. These "mutual participation" combinations include: only private interests, only government participation, some combination of the

two, and multilateral national participation. They may also be distinguished according to the dimension of the participation.

81. Spencer, J. E., Land and People in the Philippines. Geographic Problems in Rural Economy, Berkeley, University of California Press, under the auspices of the International Secretariat, Institute of Pacific Relations, 1952, xviii + 282 pp., illus.

Selected aspects of the rural background of the Filipinos in an effort to understand more clearly some of their current problems. Similar to the Bell Report. The importance of agrarian reform is stressed.

82. Stanner, W. E. H., The South Seas in Transition: A Study of Post War Rehabilitation and Reconstruction in Three British Pacific Dependencies, Australian Institute of International Affairs, Sydney, Australasian Publishing Company, and Institute of Pacific Relations, London, Harrap, 1953, pp. xiv + 448.

Events and problems in New Guinea, Fiji, and Western Samoa, from pre-war to post-war conditions. Examination of the implications of trusteeship and necessity for further research into economic problems is presented.

83. Storer, James A., "Philippine Economic Progress", FES, Vol. XXII, No. 8, pp. 89-95.

Along with an analysis of Philippine economic progress, the early plans for industrialization are outlined.

84. Sturmthal, Adolf, "Economic Development, Income Distribution, and Capital Formation in Mexico", JPE, Vol. LXIII, No. 3, pp. 183-201.

Examines the questions affecting income distribution and capital formation in relation to Mexico's economic growth.

85. Tax, Sol, "Changing Consumption in Indian Guatemala", EDCC, Vol. V, No. 2, pp. 147-158.

This paper seeks to show that consumption patterns of the Guatemala Indians do change in expectable ways, and to show why they do not change more. It is maintained that these changes suggest it need not be difficult to increase radically the level of living, rate of saving, and the potential for capital formation. It is argued that change is a function of the perception of the Indian--what from their point of view and in their situation seems good and feasible.

86. Tewfik, Hammad, "The Economic Development of the Sudan", India Quarterly, Vol. XI, No. 3, pp. 284-289.

A general introduction to and economic survey of Sudan. Present-day culture and governmental setup are outlined.

87. Thompson, C. H., and Woodruff, H. W., Economic Development in Rhodesia and Nyasaland, Dennis Dobson, London, 1954, pp. 205.

Implications of development and the potentialities of the area's resources from a business viewpoint.

88. Trager, Frank N., Toward a Welfare State in Burma Economic Reconstruction and Development, 1948-1954, New York, Institute of Pacific Relations, 1954, pp. 60.

A descriptive and analytical monograph on Burma's plans for development.

89. Trager, Frank N., "Problems of Economic Development in Southeast Asia", JIA, Vol. X, No. 1, 1956, pp. 59-68.

Despite national variations, the countries of Southeast Asia share a common economic development and consequently exhibit similar problems and policies. These are identified and discussed and related to the need for some cultural changes if development programs are to succeed.

90. Tyson, Geoffrey, "Foreign Investment in India", International Affairs, Vol. 31, pp. 174-181.

The history and current position of foreign investment in India is briefly cited. India's present capital needs are suggested and the climate for investment is analyzed. The author advises that India's prospects of receiving further foreign investment depend to a considerable extent on the future treatment of long established foreign companies.

91. Uchida, Naosaku, "Economic Activities of the Chinese in Southeast Asia", AA, Vol. 1, pp. 50-59.

The history and the structure of overseas Chinese society is examined, and the role played by Chinese capital in Southeast Asia through the years is discussed, as is the relation of the Chinese to the development efforts of their respective lands.

92. Van der Kroef, Justus, "Entrepreneur and Middle Class in Indonesia", EDCC, Vol. II, No. 4, pp. 297-318.

The specific historic and cultural origins of the Indonesian middle class entrepreneur are described; his function in the Indonesian socio-economic development effort and his prospects for the future are examined.

93. Van der Kroef, Justus, "Indonesia's Economic Difficulties", FES, Vol. XXIV, No. 2, pp. 17-24.

Three related aspects contributing to an understanding of the crises in Indonesia's economy are examined. These are: the foreign trade sector; the government's policies toward native and non-native enterprises, and the corruption which it allegedly encouraged; the fiscal structure.

94. Van der Kroef, Justus, "Economic Development in Indonesia: Some Cultural and Social Impediments", EDCC, Vol. IV, No. 2, pp. 116-133.

Some of the major cultural and social obstacles impeding Indonesian economic development are touched upon. These impediments are classified into three major types: the problem of low productivity of labor; the parasitic function of indigenous entrepreneurs, and the high degree of state control over those with intellectual and developmental skills. It is maintained that these traits have been reinforced by the effects and popular expectations of a successful nationalist revolution.

95. Versluys, J. D. N., "Social Factors in Asian Rural Development", PA, Vol. XXX, No. 2, pp. 160-172.

Some of the social implications associated with rural development are discussed. The various facets of social change and the effect upon continued development are examined.

96. Welsh, Janet, "Burma's Development Problems", FES, Vol. XXV, No. 8, pp. 113-123.

The philosophy and organization of the Burmese economy are discussed in the light of the goals. The various political and economic impediments to the constitutional directives are critically outlined.

97. Wilgus, Curtis A., ed., The Caribbean: Its Economy, Gainesville, University of Florida Press, 1954, pp. xix + 286.

Papers read at the fourth annual conference devoted to the Caribbean: resources and production, manufacturing and investments, transportation and marketing, labor and industry, culture and economy.

98. Wolf, Charles, Jr., "Some Reflections on the Status of Economic Development in South and South East Asia: Report of a Trip", EDCC, Vol. II, No. 3, pp. 198-215.

A regional progress report is offered. The author is particularly concerned with comparing the progress and character of development projects in the various countries. It is suggested that a program for technical and economic assistance on a regional basis be established.

99. Wurfel, David, "Agrarian Reform in the Republic of Vietnam", FES, Vol. XXVI, No. 6, pp. 81-92.

The history and conditions of land tenancy in Vietnam are surveyed. Current efforts at reform and the significance of these measures are analyzed.

100. Zinkin, Maurice, Development for Free Asia, New York, Institute of Pacific Relations, 1956, pp. viii + 263.

Economic, political, social, and psychological aspects of economic development in South and Southeast Asia as based on the observations and experiences of the author.

II. Characteristics and Institutional Organization of Underdeveloped Countries

A. Political

101. Apter, D. E., "Some Economic Factors in the Political Development of the Gold Coast", JEH, Vol. XIV, No. 4, pp. 409-427.

The question of simultaneously building a democratic form of government and pursuing economic development in an underdeveloped area is examined; using the Gold Coast as a case example, the author attempts to show how economic and political factors are mutually dependent.

102. Baranski, L., "Why Planning in Economy", EKI, Vol. VIII, pp. 624-636.

The phenomenon of planning is defined and explored in its various degrees of application. Planning is defended as a valid tool for an expanding economy. Special attention is given to detailing the function of planning and the working of the planning mechanism.

103. Behrman, J. N., "Aid for Economic Development and the Objectives of U. S. Economic Policy", EDCC, Vol. IV, No. 1, pp. 55-67.

This study seeks to analyze the relation between certain problems of developmental aid and the objectives of U. S. foreign economic policy: special consideration is given to the economic appropriateness of aid. It is concluded that the U. S. will have a difficult task in achieving, through the vehicle of foreign aid, the long-term international objectives it has urged the world to adopt, viz., free trade, etc.

104. Bronfenbrenner, M., "The Appeal of Confiscation in Economic Development", EDCC, Vol. III, No. 3, pp. 201-218.

The author discusses whether confiscation brings the pragmatic results of economic development without sacrifice to the scale of living of the population. The author contends that confiscation has done so, is doing so, and will continue to do so, by shifting income to developmental investment from capitalist consumption, from transfer abroad, and from unproductive investment, like luxury housing.

105. Eisenstadt, S. N., "Sociological Aspects of Political Development in Underdeveloped Countries", EDCC, Vol. V, No. 4, pp. 289-307.

Systematically seeks to outline some of the main sociological factors influencing the political developments in underdeveloped countries and the social characteristics and internal dynamics of their political systems. The similarities and differences between less developed areas are discussed.

106. Hoselitz, B. F., "Nationalism, Economic Development and Democracy", Annals, No. 305, pp. 1-11.

Examines the positive and negative aspects of nationalism, and relates the positive aspect of indigenous nationalism to forms of economic development, tracing the interrelations between them. Also relates "the social processes involved in economic development and the growth of a common national consciousness in an underdeveloped country to its socio-political structure."

107. Lipson, Leslie, "Government in Contemporary Brazil", CJEPS, Vol. XXII, No. 2, pp. 183-198.

An analysis of some of the contradictions that exist within the state when the economy propels it forward while the social order holds it back. What happens in politics when reform of government must be adjusted to a fast rate of economic change and a slow rate of social change?

108. Mysbergh, James H., "The Indonesian Elite", FES, Vol. XXVI, No. 3, pp. 38-42.

The elite group of Indonesia is defined and described; numbering about 200, it claims to speak for the nation. Its influence upon the nation is analyzed. It is maintained that the influence of the group is undergoing a gradual decay.

109. Opler, Morris E., "Problems Concerning Official and Popular Participation in Development Projects", EDCC, Vol. II, No. 4, pp. 269-278.

The real problems of economic development projects are seen to be associated with participation in the learning and implementing of innovations. The important questions, relevant to participation experience, are: what has been learned; what has been continued; what has been repeated.

110. Public Administration Clearing House, "Experiences of Personnel of United States Voluntary Agencies", EDCC, Vol. II, No. 5, pp. 329-349.

Based on interviews and consultations, the report considers the following facets of project development assistance: problems of timing, balance, and priority; working relations with officials; adapting and communicating techniques; securing local and official participation; evaluation.

111. Riggs, Frederick W., "Public Administration: A Neglected Factor in Economic Development", Annals, No. 305, pp. 70-80.

An analysis of some of the administrative obstacles which hamper economic development. Public Administration should not be neglected in view of the fact that many of the requisites for economic development are often provided for by governmental agencies, and such services must be provided by an adequately trained personnel.

112. Trager, Frank N., and Gordon, Louis, "Promoting Economic Development with Aid and Trade", Antioch Review, Vol. XVI, No. 2, pp. 223-235.

Argues for the political wisdom inherent in a larger, longer-run U. S. bilateral aid and trade program, which also includes increased reliance on multilateral agencies.

B. Cultural

113. Belshaw, C. S., The Great Village, London, Routledge and Kegan Paul, 1957, pp. xviii + 302.

A study of the economic and social relations of Hanuabada, a New Guinea village. Covers demography, levels of living, sources of income, social customs, race relations, and analyzes problems connected with economic improvement.

114. Comhaire, Jean L., "Economic Change and the Extended Family", *Annals*, No. 305, pp. 45-52.

One of the consequences of economic development in an underdeveloped area is the dissolution of the family pattern. This results from the entrance of a money economy and urbanization which follow contacts with strangers and the prevalence of market values. Points out the danger of ethnocentrism and economic determinism as they affect native families of the Belgian Congo.

115. DeYoung, J. E., *Village Life in Modern Thailand*, Berkeley, University of California Press, 1955, pp. 224.

Peasant life in the areas outside Bangkok delta plain. Concentration on those peasants who live in long-settled, compact village units and who practice a self-subsistent rice economy. A synoptic account of the daily activities in a Thai village, "designed to give the lay reader a picture of how a Thai peasant and his family live and work in present-day Thailand, to show how the life of the peasant has changed in the last half century, and to point out some of the possibilities for his immediate future".

116. Dube, S. C., *Indian Village*, Ithaca, Cornell University Press, 1955, pp. xiv + 268.

Study of the socio-economic pattern of an Indian village. Relates the dependence of the village to the economy of the rest of the world. Reviews the various changes in village life through time, especially since 1948.

117. Herskovits, M. J., "African Economic Development in Cross-Cultural Perspective", *AER*, Vol. XLVI, No. 2, pp. 452-461.

Questions the applicability of Western economic thought to non-Western societies.

118. Hoselitz, B. F., "Problems of Adapting and Communicating Modern Techniques to Less Developed Areas", *EDCC*, Vol. II, No. 4, pp. 249-268.

The author is concerned here with facilitating the introduction of appropriate innovations into underdeveloped economies. Innovations are classified into three categories: the field of social action in which the innovation is predominantly located; the degree of change called forth by the innovation; and the class of persons whose social behavior is directly and immediately affected by its introduction.

119. Hoselitz, B. F., "Noneconomic Factors in Economic Development", *AER*, Vol. XLVII, No. 2, pp. 28-41.

An examination of the environmental conditions which may account for the "take-off" period, when an economy is suddenly capable of saving and investing a larger proportion of its net income after a long period of an unchanging rate of net investment. Suggests that a theoretical system explaining the interrelations between the various processes determining institutions embodying social change is needed. Several "explosive" case situations and the elements of a theory of social change are presented.

120. Hoyt, Elizabeth E., "The Impact of a Money Economy on Consumption Patterns", *Annals*, No. 305, pp. 12-22.

A study on the effect money has on consumption patterns in situations in which new money income results from new opportunities to make or earn money under conditions of technological change.

121. Mair, L. P., "Applied Anthropology and Development Policies", The British Journal of Sociology, Vol. VII, pp. 120-133.

The character of "applied" anthropology and its interest in social change are discussed. This interest is seen to be concerned with the circumstances in which new influences will be stronger than those making for conformity. The contributions of leading applied anthropologists are summarized, and the role of anthropologists in policy-making analyzed.

122. Merrill, R. S., "Some Social and Cultural Influences on Economic Growth: The Case of the Maori", JEH, Vol. XIV, No. 4, pp. 401-408.

A case of significant economic development based on considerable investment in production goods occurring in the unfavorable environment of New Zealand from 1840-1860; description of the Maori economy in 1840 and the economic changes during the following twenty years.

123. Nitisostro, W., "Some Data on the Population of Djabres: A Village in Central Java", EKI, Vol. VIII, pp. 759-784.

This essay contains data regarding the pattern of village communities, as well as some data regarding the factors affecting structural changes and economic development in village areas. Extensive socio-demographic statistics are provided.

124. Paul, Benjamin, Health, Culture and Community, Russell Sage Foundation, New York, 1955, pp. 493.

This book provides case material dealing with health problems and programs operating at the community level. The cases are reported by persons directly involved or able to assess the situation through direct observation or interview. The examples were selected to illustrate various facets of communal relationships and include failures as well as successes. The main emphasis is on the immediate situation, rather than on social antecedents of health conditions or on long-range consequences of medical developments.

125. Salz, B. R., "The Human Element in Industrialization: A Hypothetical Case Study of Ecuadorian Indians", EDCC, Vol. IV, No. 1, Part II, pp. 1-229.

The implications of the industrialization process in transforming possessors of pre-industrial skills into industrial workers. It seeks to furnish a systematic statement of the specifically human problems arising in the early stages of industrialization; a conspectus of the interpersonal and cultural problems involved in industrialization and factors facilitating or inhibiting this process.

126. Speiser, E. A., "Cultural Factors in Social Dynamics in the Near East", MEJ, Vol. VII, No. 2, pp. 133-152.

Speiser digs into the historical background of Turkey, Iraq, Saudi Arabia, and Egypt in order to explain that the changes taking place are to some extent linked to the background of the nation--"the Muslim Arab states do not constitute a single ethneme (group personality; group temperament)--Egypt is one unit part; the Arabian peninsula another, and Turkey a third."

127. Theodorson, G. A., "Acceptance of Industrialization and Its Attendant Consequences for the Social Patterns of Non-Western Societies", American Sociological Review, Vol. XVIII, No. 5, pp. 418-438.

This article outlines how certain dominant patterns of machine society cannot be rejected by non-Western societies as they attempt to improve standards of living. Certain economic tools modeled on Western methods are presumed to be basic necessities for development.

128. Thorner, Daniel, "The Village Panchayat as a Vehicle of Change", EDCC, Vol. II, No. 3, pp. 209-215.

While great dependence has been placed upon the panchayat to foster development in the village, it is held that they are not tested instruments for such a function; and to approach development through such a vehicle appears to the author to be an "exercise in frustration".

129. Van der Kroef, Justus, "Collectivism in Indonesian Society", SR, Vol. XX, No. 2, pp. 193-209.

What are the communal patterns that persist in Indonesia, and why do they now revive despite Dutch influence? The socio-psychological, cultural, and social factors explaining this collectivist orientation are discussed.

130. Van der Kroef, Justus, "Chinese Assimilation in Indonesia", SR, Vol. XX, No. 4, pp. 445-472.

The heterogeneous Indonesian society is examined with particular reference to its large Chinese minority, whose socio-cultural, economic, and political traditions and practices tend to create a difficult exclusiveness.

131. Wolf, Charles, Jr., "Institutions and Economic Growth", AER, Vol. XLV, No. 5, pp. 867-883.

This paper calls for institutional surveys to be used as a basis for programming technical assistance, rather than relying solely on technological and investment surveys. Some preliminary observations and suggestions for such a framework are made.

C. Economic

1. Living Standards and the Definition of Underdevelopment

132. Chessa, F., "Depressed Zones and Economic Progress", Kyklos, Vol. IX, pp. 193-209.

The various expressions describing "underdevelopment" are reviewed. It is asserted that the character of "depressed zones" is to be found in the fact that production is below the average due to land yields which are submarginal.

133. Mier, G. M., "The Poverty of Nations", WA, Band 78, pp. 74-96.

The paper is concerned with three main questions, viz.: (1) what are the general economic characteristics of poor countries? (2) Why have these countries remained poor? (3) What are the general economic requirements of these countries? Criteria for investment are suggested, and the significance of the terms of trade for underdeveloped countries is examined. Psychological and sociological requirements for development are stressed.

134. Myint, H., "An Interpretation of Economic Backwardness", Oxford Economic Papers, Vol. VI, No. 2, pp. 132-163.

✓ Extensive discussion on the terms appropriate to describing the phenomenon of "underdevelopment".

135. Niculescu, B. M., "Underdeveloped, Backward or Low Income", EJ, Vol. LXV, No. 259, pp. 546-548.

✓ Findings in favor of "Low Income" for purposes of providing a dividing line; the least ambiguous way of allocating countries to groups which would be significant for the purpose of both theoretical and practical discussions.

2. Agriculture

136. Addison, Herbert, Land, Water and Food, London, Chapman and Hall, 1955, pp. xii + 248.

Commentary on the past, present, and future of irrigation, reclamation, and the food supplies they yield. Describes some of the great irrigation schemes of the world. Relates irrigation to economic development.

137. Dey, S. K., "Gotong Rayong or Along Along? A Draft Scheme for a Community Development Programme in Indonesia", EKI, Vol. VIII, pp. 528-586.

Stresses the need for an Indonesian community development scheme as a means to expedite economic development. Sixteen pilot community development plans are introduced. Financing of the program is seen to be possible through a grant-in-aid of one rupiah per capita in rural areas, to be matched by a contribution from the villager through gotong rayong in the form of cash, labor, and materials. Extensive statistics apropos education, agriculture, health, and welfare are included.

138. Dube, S. C., "Some Problems of Communication in Rural Economic Development", EDCC, Vol. V, No. 2, pp. 129-146.

✓ The problems and techniques of communications for creating in the Indian masses a desire for change and an acceptance of new ideas and techniques are dealt with. The movement is described as an educational experiment aimed at creating a progressive attitude among the village people, seeking thereby to achieve a socio-economic transformation of the village scene. Particular reference is made to the community development projects in Uttar Pradesh, India.

139. Ganguli, B. N., "Reorganization of Chinese Agriculture After Land Reform", IER, Vol. III, pp. 22-44.

Deals with the Chinese conception of the process of agricultural reorganization which must follow land reform and the various ancillary or supplementary measures which have been taken to remove the natural and institutional obstacles in the way of releasing "rural productive forces" and increasing agricultural production in an underdeveloped economy.

140. Ghosh, A. K., "The Impact of Commercial Growth on Agricultural Tenure Systems in India", Manchester School, Vol. XXIII, pp. 184-190.

✓ Attempt is made to explain the increase in share-cropping in the last few decades during which India has been drawn into the vortex of economic development. It is maintained that it is the extension of commerce which

is responsible for the system. The effect seems to have taken place independently of the pressure of population and often in the reverse direction to patterns of rural density.

141. Johnson, V. W., and Metcalf, J. E., "Land Redistribution and Industrial Development", Land Economics, pp. 155-160.

Discusses a plan for combining land redistribution with transfers of wealth from land to industrial capital.

142. Joshi, N. S., and Dhekney, B. R., Irrigation and Agriculture in the First Five Year Plan, Poona, Deccan Book Stall, 1954, pp. 120.

The thesis is that the increases in agricultural production anticipated from additional irrigation in the first period of the plan are grossly overestimated, considered in relation to the investment provided for.

143. Mahhouk, Adnan, "Recent Agricultural Development and Bedouin Settlement in Syria", MEJ, Vol. X, No. 2, pp. 166-176.

The article is on the problems of agricultural development and bedouin settlement in the Euphrates and Jazirah districts of Syria.

144. Moore, Clarence, "Recent Developments in Brazilian Agriculture", JPE, Vol. LXIV, No. 4, pp. 341-346.

A study to determine the extent to which the very substantial increases in agricultural production in Brazil have come from the use of additional land, labor, and capital.

145. Mosher, Arthur T., Technical Cooperation in Latin American Agriculture, Chicago, University of Chicago Press, 1957, pp. xiv + 449.

A series of monographs which analyze and evaluate aspects of technical assistance and the programs and objectives being undertaken in Latin America.

146. Nicholls, William H., "Investment in Agriculture in Underdeveloped Countries", AER, Vol. XLV, No. 2, pp. 58-73.

Turkey's expansion in agricultural output in recent years is reviewed and appraised; lessons to be learned from Turkey's experience are discussed.

147. Noble, T. A. F., "An Experiment in Foodgrain Procurement: A Case Study in Underdeveloped Areas", EDCC, Vol. V, No. 2, pp. 175-185.

This is a case study of the techniques of food procurement under the political economic mechanisms of a less developed country. Illustrated here are the special difficulties of planning in such countries whenever the controls used are inconsistent with political and social attitudes, or with existing economic forces, or rely on inadequate statistical data. It is held that administrative intervention in the market should be concerned with improving the market mechanism rather than displacing it.

148. Ohkawa, Kazushi, "Economic Growth and Agriculture", Annals of the Hitotsubashi Academy, Vol. II, pp. 46-60.

Analyzes the problems of agriculture in the long-run process of economic growth with special reference to the productivity-employment phase. The historical experience of the Japanese agricultural sector and economy is used as a model of development.

149. Ottenberg, S., "Improvement Associations among the Afikpo Ibo", Africa, Vol. XXV, No. 1, pp. 1-28.

A new type of association, the improvement union or "meeting", has become common in Southern Nigeria. Associations of this type may carry out various economic, educational, political, social, and general improvement activities directly related to changing cultural conditions.

150. Patel, G. D., The Indian Land Problem and Legislation, Bombay, 1954, pp. 534.

Extensive analysis of land reforms of the Bombay State between 1950 and 1953 and of land reform laws in various other Indian states.

151. Ruopp, E., ed., Approaches to Community Development: A Symposium Introduction to Problems and Methods of Village Welfare in Underdeveloped Areas, The Hague, W. Van Holve, 1953, pp. 352.

This collection of papers treats the issue in broad perspective. The sections deal respectively with the sociological, economic, and educational aspects of community development. Contains general discussions of principles, problems, and methods, and several case studies from Africa, Java, and Ceylon.

152. Stamp, D. L., Land for Tomorrow, the Underdeveloped World, American Geographical Society, Bloomington and New York, Indiana University Press, 1952, pp. 230 + illus.

Broad analysis of rate of growth of the world's people and the capacity of land. Points out the necessity for improving agricultural yields.

153. Thirumali, S., Post War Agricultural Problems and Policies in India, New York, Institute of Pacific Relations, 1954, pp. 280.

✓ Monograph on India's agricultural problems and on the agrarian, technological, and economic reforms required to overcome them.

154. West, J. H., "The Cooperative Movement in the Federation of Rhodesia and Nyasaland", The South African Journal of Economics, Vol. XXV, pp. 41-56.

Reviews the development of the infant cooperative movement in the Federation. The roots of the movement, generally, had their impetus less in spontaneous generation than as the result of government nurture. Consumer cooperatives and credit societies have not prospered, while producers' movements have.

3. Industry

155. Balakrishna, R., "Progress in Production Technique and the Structure of the Capital Goods Industries", IEJ, Vol. IV, pp. 1-8.

✓ Contains a critical evaluation of the Second Five Year Plan, the introduction of new production techniques, and the structure of heavy industry.

156. Barnea, J., "Economic Implications of Electrification in Underdeveloped Countries", EDCC, Vol. II, No. 5, pp. 371-379.

Some of the economic problems arising in underdeveloped countries in connection with their electrification program are considered. Particular attention is given to: the foreign exchange requirements of electrification and their impact on a country's balance of payments; the cost of generating

and distributing electricity in relation with the pattern of industrial development; the problem of electricity tariffs in underdeveloped countries; rural electrification.

157. Dhar, P. N., "Some Aspects of Technical Progress in Small Scale Industries", IER, Vol. III, pp. 67-76.

Particular reference is made to the capital-output ratio. The validity of two propositions is given particular attention: (a) how far advances in technology involve a rise in the value of capital-output ratios, and (b) whether, and to what extent, the capital-output ratio is a sufficient criterion for the choice of the appropriate type of technology.

158. Grunwald, Kurt, "The Industrialization of Lebanon and Syria", WA, Band 76, Heft 1, pp. 141-178.

The new industrial complex in these states is described as being built up on the remnants and ruins of a once-flourishing indigenous trade. A history of the economies over the last three decades is traced. Particular attention is given to the textile industries of both Lebanon and Syria. A discussion of nationalization in Syria is included.

159. Herman, T., "The Role of Small-Scale Industries in Asian Economic Development", EDCC, Vol. IV, No. 4, pp. 356-367.

The increasing significance of cottage and small-scale industries in development plans is noted. The drawbacks and advantages of these industries are defined and classified according to the function they serve.

160. Lamb, Helen B., "The Indian Business Communities and the Evolution of an Industrialist Class", PA, Vol. XXVIII, No. 2, pp. 101-116.

The author explores some of the following problems: the evolution of the Indian industrial pattern; the identification of the industrialist; the organizational forms used; the business communities which have promoted industrial expansion; and the affect of the industrial developments upon the communities.

161. Nash, Manning, "Some Notes on Village Industrialization in South and South East Asia", EDCC, Vol. III, No. 3, pp. 271-277.

The typical village of South and South East Asia is here regarded as an important laboratory in which there is offered the opportunity to assess the range of institutional compatibility with industrial production, on the one hand, and to discover the gamut of possibilities of the industrial organization of society, on the other.

162. Percival, D. A., "Industrialization: Historical Background, Existing Industries and Industrial Potential of the Caribbean Area", Caribbean Economic Review, Vol. V, Nos. 1 and 2, pp. 5-19.

The forces working for and against a successful growth of factory industries in less developed areas, particularly in the Caribbean, are discussed. Analogies from other countries are employed. It is suggested that the industries established have as their basis the processing of local raw materials.

163. Zain, H., and Mulia, W., "The Implementation of the Mechanization Programme for Small Scale Industries: A Report by the Institute for Economic and Social Research, University of Indonesia", EKI, Vol. X, pp. 127-171.

The basic concept of the mechanization program covers the activities of governmental bodies in their efforts to stimulate economic activity among the people by supplying machines to small-scale industrial producers and cottage industries on a credit purchase system.

4. International Trade

164. Aubrey, Henry G., "The Long-Term Future of United States Imports and Its Implications for Primary-Producing Countries", *AER*, Vol. XLV, No. 2, pp. 270-287.

Aubrey's estimates rely heavily on individual commodity market forecasts, rather than on aggregative trend projections. The implications of the actual projections are for greatly increased U. S. imports, and the possible advantage of a higher multiplier effect for underdeveloped primary-producing countries.

165. Bruton, Henry J., "Productivity, the Trade Balance and the Terms of Trade", *EI*, Vol. VIII, pp. 503-519.

A model is presented maintaining that the underdeveloped countries will gain from productivity advances in the U. S., and the more so, the higher the rate of those increases. It is held that empirical material as to the behavior of the terms of trade between advanced and underdeveloped countries is unconvincing in support of the argument that the terms of trade of the latter countries have suffered a long-run deterioration.

166. De Neuman, A. M., "'Tied' International Trading--the Indonesian Rami Fibre Test Case", *EJ*, Vol. LXIV, No. 254, pp. 324-336.

A study of "tied" transactions which would cause trade to flow outside the usual channels. Japan is used as an example of an industrial country facing a shortage of raw materials, and Indonesia as the case of an underdeveloped country capable of producing some of the raw materials but unable to process them into consumer goods.

167. Rao, Y. S., "The Pattern of India's Foreign Trade in Relation to Economic Development", *IJE*, Vol. XXXVI, pp. 283-291.

The risks associated with dependence upon primary products are noted, and the need for developing a many-sided and balanced economy, so as to create a stable structure of export trade, is emphasized. The contributions of a carefully planned foreign trade policy to economic development are cited.

5. Planning

168. Bahadur, R. P., "Indian Economic Policy: Its Source and Inspiration", *IJE*, Vol. XXXVI, pp. 99-116.

The reasons behind the adoption of the "planning instrument" in India are traced. It is said that such an approach was adopted, not so much to resolve or reconcile the contradictions of capitalism in its advanced stages, as to bring about speedy economic recovery in an underdeveloped land "pledged to the exclusive service of the common man".

169. Baster, James, "Development and the Free Economy: Some Typical Dilemmas", *Kyklos*, Vol. VII, pp. 1-17.

Economic development through the transplantation of the basic institutions of western capitalism to the countries to be helped, is questioned. It is concluded that the basic institutions for a liberal economic society need to be differentiated somewhat in different economic and social circumstances, in a way which accommodates the institutions to the stage of development reached by the country concerned, but which does not compromise the basic principles involved.

170. Bhatia, R. S., "The Pattern of Investment Under the Five Year Plans", IJE, Vol. XXXV, pp. 81-91.

India's need for industrialization; investment priorities and capital sources are discussed.

171. Gadgil, D. R., "Prospects for the Second Five Year Plan Period", India Quarterly, January-March 1957, pp. 5-23.

Consideration of the second five year plan begins with some observations of the achievement of the first. It is maintained that the major achievements of the first plan might not have been planned at all. The author generally concurs with the need for the second five year plan to maximize effort for growth. Many pitfalls of the plan are, however, cited.

172. Gamba, C., "The Role of the State in Underdeveloped Areas", The Economic Record, Vol. XXIX, pp. 245-256.

Discusses the necessity for, as well as the character, purpose, and problems of, state intervention in the economic life of the underdeveloped areas.

173. Granick, D., "The Pattern of Foreign Trade in Eastern Europe and Its Relation to Economic Development Policy", QJE, Vol. LXVIII, No. 3, pp. 377-400.

A descriptive picture of development and trade patterns supported in part by statistical data, and hypotheses regarding the Eastern European internal development and foreign trade pattern.

174. Higgins, B., "Development Planning and Economic Calculus", SR, Vol. XXIII, No. 1, pp. 35-56.

A definition is made of the goals and role of the economist in shaping general theory of development. Objectives and measurements of development are demonstrated as control instruments in various types and phases of planning.

175. King, H. H., "The Truth about the Underdeveloped Far East", Far Eastern Economic Review, Vol. XVI, pp. 492-496.

The phenomena of underdevelopment and economic planning are critically treated, and some social and economic pitfalls and bottlenecks to various plans are described. The author cautions against too great a dependence on foreign aid. He advocates creating that society--with its institutional changes and changes in the attitudes of the people, over the long run--where private development is possible.

176. McKay, Edgar C., "Indonesian Manpower Survey and Employment Information Project", EKI, Vol. IX, pp. 299-309.

This report was done in response to the need to obtain information on labor supply and demand so that Indonesia could within a period of from

two to three years have sufficient data for rather detailed manpower planning in connection with economic and social development. The format of a procedure is outlined, and the findings are detailed.

177. Mukerjee, B. K., "Mixed Economies in Theory and Practice", *IJE*, Vol. XXXV, pp. 223-230.

✓ The role of a mixed economy development is explored. Such a system is deemed wise for the needs of India.

178. Nurkse, Ragnar, "Reflections on India's Development Plan", *QJE*, Vol. LXXI, No. 2, pp. 188-204.

✓ Examines India's unemployment problem and the "Second Plan". The following topics are considered: revival of household industries; expansion of steel and engineering capacity; need for public overhead facilities; and employment creation through capital construction.

179. Okita, Sabura, "Political and Economic Conditions for Development Planning", *AA*, Vol. I, pp. 12-23.

The efforts of Asian nations to achieve economic betterment and the various mechanisms of planning for goal attainment under democratic governmental institutions are analyzed. The author discusses the various ways a nation has of overcoming the inadequate supply of development capital. Particular attention is devoted to mobilizing domestic capital.

180. Saraceno, P., "IRI: Its Origin and Its Position in the Italian Industrial Economy", *Journal of Industrial Economics*, Vol. III, pp. 197-221.

The activities of the Istituto per la Ricostruzione Industriale since its origin, in 1933, are traced. This public institution is said to reflect, more than any other, the exceptional events of a financial, industrial, or social nature which took place in Italy during the last 25 years.

181. Simey, T. S., "The Analysis of Social Problems", *Sociological Review*, Vol. I (New Series), No. 1, pp. 71-86.

A discussion of methods of analysis used to insure adequate social planning. Some reference is made to underdeveloped areas, in particular, the British West Indies.

182. Vakil, C. N., and Brahmananda, P. R., Planning for a Shortage Economy, the Indian Experiment, Bombay, Vora, 1952, pp. 317.

✓ Analytical critique of the First Five Year Plan. Reviews financial aspects of the plan and problems of consumption and waste.

III. The Measurement and Theory of Economic Growth

A. Measurement of Growth

183. Hollinger, William, "Social Accounting in Underdeveloped Areas", EKI, Vol. IX, pp. 588-604.

Quantitative analyses of economic development at a particular moment of time and during short-run periods are considered. The author maintains that all three traditional accounting methods--conventional national income tables, system of sectoral accounts, and input-output tables--have something to contribute to the analysis of underdeveloped countries and the problem of development.

184. Hollinger, William, and Tan, A. D., "The National Income of Indonesia, 1951-1952: A Critical Commentary on the Neumark Estimates (I)", EKI, Vol. IX, pp. 788-798.

This first of two essays deals with procedural and conceptual criticism of Neumark national income estimates. The authors express satisfaction with Neumark's conception of the task, but are in disagreement with several steps in the execution of the conception. It is maintained that the estimates as presented by Neumark are not a satisfactory appraisal of Indonesia's national income.

185. Hollinger, William, and Tan, A. D., "The National Income of Indonesia, 1951-1952: A Critical Commentary on the Neumark Estimates (II)", EKI Vol. X, pp. 2-331.

An attempt is made to analyze the statistical material available in Indonesia for that part of national income estimates involving agriculture. The methods of compilation of these statistical materials are analyzed, and an attempt is made to assess their reliability and usefulness.

186. Irvine, A. G., "The Preparation of National Finance Accounts in Underdeveloped Economies (With Special Reference to Rhodesia and Nyasaland)", EJ, Vol. LXV, No. 258, pp. 271-283.

The importance of national finance accounts is underscored, and their relationship to National Income accounts is examined; the design, preparation, and use of these accounts are covered.

187. Nutter, G. Warren, "On Measuring Economic Growth", JPE, Vol. LXV, No. 1, pp. 51-63.

A consideration of the meaning of growth in productive capacity; conventional measures of growth; and problems of measurement.

188. Oshima, H. T., "A Note on Income Distribution in Developed and Underdeveloped Countries", EJ, Vol. LXVI, No. 261, pp. 156-160.

It is argued that it is risky to generalize that there is an inequality in size distribution of income in the underdeveloped areas which is greater than in the U. S. and U. K.

189. Patel, S. J., "The Distribution of the National Income of India", IER, Vol. III, pp. 1-12.

Attempts to make the necessary adjustments and derive information on the distribution of the national income in 1950-1951 among wages and salaries, income of the self-employed, and income from property.

190. Patel, S. J., "Growth in Income and Investment in India and China, 1957-1960", IER, Vol. III, pp. 53-67.

Attempts to bring together some of the statistical material needed for a discussion of growth in income and investment. The first section is devoted to establishing national income and investment in China and to discussing the problem of their comparability with those in India. The comparison for the period 1952-1956, and for plans up to 1960 are also discussed.

191. Saville, L., "Statistical Sampling: An Adaptation to Italian Economic Development", The Economic History Review, Vol. IX, No. 2, Second Series, pp. 298-312.

The thesis of this paper is that, in a country such as Italy, reliance on national averages of population, income, and living standards conceals the true range of conditions making up the average. It is suggested that a sampling technique permits generalization from data representing the complete economic organism. Some aspects of stratified sampling are employed, and economic change over about an eighty year period (1870-1951) is measured.

192. Seers, Dudley, "The Role of National Income Estimates in the Statistical Policy of an Under-Developed Area", Review of Economic Studies, Vol. XX, No. 3, pp. 159-168.

An analysis of the use of statistics in planning. Suggests use of specific rather than aggregative data.

193. Sherwood, P. W., "Export Duties and the National Income Accounts", EJ, Vol. LXVI, No. 261, pp. 73-83.

Shows why there is a need for some changes to be made in the present social accounting approach to export duties if their economic effects are to be satisfactorily represented. Suggests an alternative approach.

B. Theory of Growth

194. Baldwin, E., "Some Theoretical Aspects of Economic Development", JEH, Vol. XIV, No. 4, pp. 333-345.

Examines four theories of economic development--the classical, neo-classical, Marxian, and Schumpeterian. Current literature is discussed as it deals with methodological matters.

195. Barnea, J., "National Income, Capital Formation, and Natural Resources", Kyklos, Vol. IX, pp. 300-320.

Seeks to show: (a) that natural resources are of increasing importance in a modern economy; (b) that prevailing economic theory disregards natural resources as an independent factor; (c) that the definition used in national income and similar statistics is based on prevailing economic theory and therefore excludes natural resources from such calculations; and (d) that the resulting figures sharply distort real conditions, and a new method of calculating capital formation is suggested.

196. Baster, James, "Recent Literature on the Economic Development of Backward Areas", QJE, Vol. LXVIII, No. 4, pp. 585-602.

A snapshot of the recent work of economists on the problem of development in pre-industrial areas; consisting of a survey of the historical

approach, the classical school, sociological views, economic aspects, and development in practice.

197. Bauer, P. T., and Yamey, B. S., "Further Notes on Economic Progress and Occupational Distributions", *EJ*, Vol. LXIX, No. 253, pp. 98-106.

A reply to criticism of their December 1951 article, restating their original position that many forms of secondary and tertiary production are statistically undervalued in official reports, and that this fact biases the generally accepted thesis of the association of economic growth especially with the growth of the tertiary sector.

198. Belshaw, Horace, Population Growth and Levels of Consumption, London, George Allen and Unwin, 1956, pp. xxix + 223.

Considers the problems of economic development in countries in which the rate of population growth makes it difficult to escape from a "Malthusian situation". The problems of capital formation, investment, economies of scale, innovations, and the effective supply of labor are considered in relation to population growth. Principle attention is given to a consideration of the relationship between population growth and levels of consumption; economic development is regarded as a social process which results in a cumulative increase in levels of consumption.

199. Belshaw, J. P., "Social and Economic Revolution for the Development of Backward Countries", *Economic Record*, Vol. XXXII, pp. 319-333.

Advocates applying the lessons of economic history and the teachings of the classical economists to the problems of underdeveloped countries. Capital formation and investment criteria are discussed.

200. Bonne, Alfred, "Towards a Theory of Implanted Development in Underdeveloped Countries", *Kyklos*, Vol. IX, pp. 1-26.

Bonne traces the crucial factors contributing to western development and seeks to determine to what extent the factors mentioned can be reproduced in underdeveloped regions.

201. Brems, Hans, "Constancy of the Proportionate Equilibrium Rate of Growth: Result of Assumption", *The Review of Economic Studies*, Vol. XXIV, pp. 131-158.

This paper seeks to set up, for a closed economy, a growth model in which the consistency of the proportionate equilibrium rate of growth is not an assumption but something to be tested. The conventional 'net' approach is replaced by the gross national products approach, thus permitting the inclusion of an explicit model into the function.

202. Bruton, Henry J., "Growth Models and Underdeveloped Economies", *JPE*, Vol. LXIII, No. 4, pp. 322-336.

An examination of a modified version of the growth theory developed by Domar, Harrod, Fellner, and others in the light of the more commonly known characteristics of the underdeveloped countries, and an attempt to make a more systematic and rigorous statement of the problems in these countries.

203. Chacko, George K., "Certain Game Situations in Regional Economic Development", *IJE*, Vol. XXXVI, pp. 168-176.

Viewing international trade as an important element in regional economic development, the tool of the theory of games is employed to analyze certain game situations suggested as existing in the present and potential relationships among India, Ceylon, and Pakistan, in relation to jute, tea, and cotton textiles.

204. Chand, M., "A Note on the Genesis of Economic Development", *IJE*, Vol. XXXV, pp. 165-168.

The value structure of the Orient; the necessity of, and a plan for, increasing the rate of savings.

205. Clark, J. M., *Economic Institutions and Human Welfare*, New York, A. A. Knopf, 1957, pp. 283; esp. Ch. XII, "The Relation of Western Economic Thought to the World Struggle".

The basic concern of Chapter XII is with the applicability of western economics to underdeveloped areas, and the proper contribution of the west to development efforts. It is maintained that neither western economic or political philosophy may be entirely appropriate to underdeveloped nations. Clark calls for a sense of kinship with these nations, for both share in a task of "evolutionary adaptation aiming to direct the productiveness of modern techniques to improving the welfare of the people at large".

206. Cottrell, Fred, *Energy and Society: The Relation between Energy, Social Change and Economic Development*, New York, McGraw Hill, 1955, pp. 330.

Traces man's use of energy, from readily available, but low yield, sources, to more complicated, but high yield, forms, and indicates broadly the influences on social interrelations. It is the author's thesis that the amounts and types of energy employed condition man's way of life materially and set somewhat predictable limits on what he can do and on how society will be organized.

207. Datta, Amlan, "The Pattern of Economic Growth", *IJE*, Vol. XXXVI, pp. 57-66.

Attempts to outline a theory of economic growth after examining a number of other theories and isolating some of the factors which appear to have influenced growth in the past.

208. Datta, Amlan, "Welfare Versus Growth Economics", *IEJ*, Vol. IV, pp. 145-153.

An essay on the antithesis between social welfare and rapid growth. The credits and debits of growth are contrasted with worker and consumer welfare.

209. Easterbrook, W. T., "Uncertainty and Economic Change", *JEH*, Vol. XIV, No. 4, pp. 346-360.

Draws attention to uncertainty as a possible key to the study of economic change. Principal interest is in the environment of decision-making.

210. Eckaus, R. S., "The Factor Proportions Problem in Underdeveloped Areas", *AER*, Vol. XLV, No. 4, pp. 539-565.

Hypotheses are developed to explain unemployment and underemployment. Market imperfections, restricted opportunities for technical substitutability of factors, and inappropriate factor endowments, rather than lack of effective demand, are cited as causing unemployment difficulties.

211. Fisher, A. G. B., "Tertiary Production: A Postscript", EJ, Vol. LXIV, No. 255, pp. 619-621.
A criticism of the Bauer and Yamey article (see item 197). This note also makes some supplementary remarks about the usefulness of the tertiary production concept.
212. Fisher, A. G. B., "Marketing Structure and Economic Development: Comment", QJE, Vol. LXVIII, No. 1, pp. 151-154.
A critical evaluation of the Holton paper (see item 223). This comment suggests that, if properly understood, the Clark-Fisher thesis may be quite applicable to Puerto Rico.
213. Fleming, M., "External Economies and the 'Doctrine of Balanced Growth'", EJ, Vol. LXV, No. 258, pp. 241-256.
An evaluation of the "doctrine of balanced growth" in the theory of economic development, and an examination of the basic assumptions. Additional refinements of the theory are introduced.
214. Fleming, M., "Rejoinder to Professor Nurkse", EJ, Vol. LXVI, No. 263, pp. 537-539.
Re-examination of the "doctrine of balanced growth", particularly the bearing of factor-supply conditions on the validity of the doctrine, as well as the static assumptions presented by Fleming in an earlier article (see item 213), in the light of Nurkse's comments (see item 245).
215. Frank, A. G., "Comments on 'Problems of Economic Development', Notes and Memoranda", CJEPS, Vol. XXI, No. 2, pp. 237-241.
An evaluation of Mr. Triantis' review article (see item 261).
216. Frank, A. G., "Policy Decisions and the Economic Development of Ceylon", EI, Vol. VIII, pp. 797-809.
An analysis of the IBRD publication, The Economic Development of Ceylon.
217. Haavelmo, T., A Study in the Theory of Economic Evolution, Amsterdam, North Holland Publishing Co., 1954, pp. 114.
This monograph explores the possibilities of a general theory of economic evolution; one capable of explaining widely different possibilities of growth and of identifying conditions under which these might occur. Haavelmo studies many variants of a general model using four basic variables--output, population, capital, and "know-how".
218. Hagen, Everett E., "The Process of Economic Development", EDCC, Vol. V, No. 3, pp. 193-215.
The author employs broad interdisciplinary tools to analyze the causal sequences of social change from a "traditional" to a technologically progressive state. Central to the thesis is the hypothesis concerning the role of "subordinated" groups in the process of change.
219. Hamberg, D., Economic Growth and Instability, New York, W. W. Norton, 1956, pp. xii + 340.
An examination of the recent literature on growth applied to a long-run, dynamic setting. Combines a summary of the literature of the subject with the exposition of a fresh theoretical viewpoint. The author asserts

that the business cycle and secular trends of a capitalist economy can best be understood as the outgrowth of the irregularity of economic progress.

220. Hancock, W. K., "The Under-developed Economies (Essays in Bibliography)", The Economic History Review, Vol. VI, Second Series, No. 3, pp. 310-315.

An essay on economic development in which three volumes are reviewed: (1) S. Herbert Frankel, The Economic Impact on Under-developed Societies, Oxford, Basil Blackwell, 1953; (2) Bert Hoselitz, ed., The Progress of Underdeveloped Areas, Chicago, University of Chicago Press, 1953; and (3) Ragnar Nurkse, Problems of Capital Formation in Under-developed Countries, Oxford, Blackwell, 1953.

221. Herenchak, Walter, "Inflation in an Export Economy", The Southern Economic Journal, Vol. XXI, No. 1, pp. 1-14.

Finds the Keynesian analysis of inflation particularly unsuited for an analysis of the inflationary process in underdeveloped economies, where the livelihood is geared closely to fluctuations in the balance of payments. Quantity theory is a good approximation of the inflation analysis for export economies.

222. Higgins, B., "The 'Dualistic Theory' of Underdeveloped Areas", EDCC, Vol. IV, No. 2, pp. 99-115.

The "dualistic theory" of development, initiated by J. H. Boeke, is critically reviewed. The author contrasts his impressions of eastern society with those of Dr. Boeke; Dr. Boeke's views, in the light of current social research, are contradicted. The underdeveloped areas are seen to be capable of achieving--with certain exogenous assistance--sustained rates of growth. Development, it is held, is a problem of will.

223. Holton, R. H., "Marketing Structure and Economic Development", QJE, Vol. LXVII, No. 3, pp. 344-361.

The role of distribution in pre-industrial countries is emphasized with particular reference to Puerto Rico. The applicability of the Clark-Fisher tertiary production thesis in Puerto Rico is questioned.

224. Holton, R. H., "Marketing Structure and Economic Development: Reply", QJE, Vol. LXVIII, No. 1, p. 154.

A rejoinder to A. G. B. Fisher's comment (see item 212). Holton suggests that not all types of tertiary production, but rather marketing and particularly food distribution, can play a crucial role in an underdeveloped area.

225. Hoselitz, B. F., "Patterns of Economic Growth", CJEPS, Vol. XXI, No. 4, pp. 416-431.

Rejects any uniform growth theory. Constructs an array of situations based on economic and non-economic variables and uses these as a basis for judging past and future growth situations. Discusses applicability of these variables to economic development in Central America.

226. Hoselitz, B. F., "Agrarian Societies in Transition", Annals, No. 305, pp. 1-156.

The first nine essays consider the social consequences and conditions of economic advancement in underdeveloped areas. Problems examined include: population growth and urbanization, political movements and administrative institutions, entrepreneurship, labor conditions and standards of consumption, and the general changes in value structures in society. The last six papers are concerned with the general knowledge of the social consequences of technical change in a number of countries; Japan, West Africa, Jamaica, Egypt, Israel, Ceylon, Africa south of the Sahara, India, and Guatemala are used as illustrations in the earlier papers.

227. Jack, D. T., "Problems of Underdeveloped Lands", The South African Journal of Economics, Vol. XXV, pp. 3-11.

The characteristics of underdevelopment are described. Techniques of capital formation are described.

228. Kuper, Leo, "The Control of Social Change: A South African Experiment", Social Forces, Vol. XXXIII, No. 1, pp. 19-29.

Government maintenance of traditional race domination for its own power is self-defeating, since economic expansion and race domination eventually conflict by forcing most of the population to return to primary production.

229. Kuznets, S., "Economic Growth and Income Inequality", AER, Vol. XLV, No. 1, pp. 1-28.

This paper examines the character and causes of long-term changes in the personal distribution of income, the questions of whether inequality in the distribution of income increases or decreases in the course of a country's economic growth, and what factors determine the secular level and trends of income inequalities. The experience of the developed countries sketched in the first three parts of the paper is compared in part four with that of the underdeveloped countries.

230. Kuznets, S., "Quantitative Aspects of the Economic Growth of Nations. I. Levels of Variability of Rates of Growth", EDCC, Vol. V, No. 1, pp. 5-94.

Presented here is the first in a series of studies of the quantitative characteristics of economic growth. A number of countries are examined, largely employing long-term series of national product and its components. Particular attention is given here to comparative data on growth of population, national product, and product per capita.

231. Lee, Douglas H. K., Climate and Economic Development in the Tropics, Council on Foreign Relations, New York, Harper, 1957, pp. xviii + 182.

A study of the effects of climate in the attempts to increase productivity in the tropics. It examines in some detail all the different phases of this challenge.

232. Leibenstein, Harvey, A Theory of Economic-Demographic Development, Princeton, Princeton University Press, 1954, pp. xi + 204.

Working with mathematical models, the author examines the interplay of economic and demographic forces in economic development. Formulates a "critical minimum effort thesis" which suggests that, for any growth to become self-generating, the initial investment must be above a certain minimum size.

233. Lewis, W. A., The Theory of Economic Growth, Homewood, Ill., Richard D. Irwin, 1955, pp. 453.

The aim is to provide a framework for the study of economic development. Since the factors which determine growth are numerous, each having its own set of theories, no single theory of economic growth is presented. Factors discussed are motivation, economic institutions, knowledge, capital, population, resources, and government. Primary emphasis is placed on growth and output, rather than on distribution and consumption.

234. Mack, R. T., Jr., Raising the World's Standard of Living, New York, Citadel Press, 1953, pp. 285.

An analysis of the problems involved in coordinating the work of national and international agencies engaged in programs of social and economic development in underdeveloped areas.

235. Mason, E. S., Promoting Economic Development: U. S. and S. Asia, Claremont, Calif., 1955, pp. 83.

The author reviews what he considers to be the dominant factors contributing to U. S. economic growth, and compares these factors with the environment and policies manifested in South East Asia, as these nations prepare themselves for a growth effort. It is noted that American growth during the 19th century was aided by (1) a high rate of private reinvestment of private profits, (2) no high income and inheritance taxes, (3) no heavy welfare payments from state to poor, and (4) no strong trade unions to limit business decisions and demand shares of profits. These situations, conducive to economic growth in capitalist societies, do not exist in the welfare states of South East Asia.

236. McKinley, Erskine, "The Problem of 'Underdevelopment' in the English Classical School", QJE, Vol. LXIX, No. 2, pp. 235-252.

The problems of capital accumulation, rate of development, substitution of factors, as well as population growth are discussed in terms of the classical attitude.

237. Meier, G. M., "The Problem of Limited Economic Development", EI, Vol. VI, pp. 388-407.

Considered are the determinants of differential rates of growth among nations. Particular attention is paid as to why, within the framework of the world economy, development has been retarded in the underdeveloped countries. The principal explanation for development retardation is to be found in some basic elements of the classical stationary state and in some implications of the international features of development.

238. Meier, G. M., and Baldwin, R. E., Economic Development, New York, John Wiley and Sons, 1957, pp. 588.

Economic theories, history, and the present status of economic development are considered. The theories of Adam Smith, Alfred Marshall, Knut Wicksell, J. A. Schumpeter, G. Cassel, E. Domar, and R. F. Harrod are represented. At some length, the writers differentiate between poor and rich countries of the world and present a number of suggestions for development.

239. Mikesell, R. F., and Spengler, J. J., "Economic Doctrines Implied in the Reports of the United Nations and of the International Bank for

Reconstruction and Development on Underdeveloped Countries", AER, Vol. XLIV, No. 2, Papers and Proceedings 1953, pp. 570-610.

Mikesell: Economic doctrines reflected in U. N. reports. Three problems of a theoretical economic nature seem to be implied: (1) international equilibrium, (2) economic development, and (3) full employment and domestic stability. Finds that the traditional remedies for these problems are rejected in favor of governmental allocations and controls.

Spengler: IBRD Mission, Economic Growth Theory. Delineates areas affecting economic development which the IBRD Missions have failed to recognize or, recognizing them, have failed to give proper attention.

240. Millikan, Max, Bronfenbrenner, M., and Patinkin, D., "Economic Thought and Its Application and Methodology in the East", AER, Vol. XLVI, No. 2, Papers and Proceedings 1955, pp. 389-418.

Bronfenbrenner: The state of Japanese economics. An outline of the main features of contemporary Japanese economic thought. Still in the essentially derivative stage.

Millikan: Economic thought and its application and methodology in India. Has a long tradition with roots in classical English economics. Struggling with the application of western theory to development problems. Currently concerned with growth policies.

Patinkin: The Middle East; Israel. No unique Israeli economic thought. Application of western techniques and analysis to economic development.

241. Myrdal, Gunnar, An International Economy, London, Routledge and Kegan Paul, 1956, pp. 381.

International payments, labor and capital mobility, international aid, and price stabilization are discussed apropos economic development.

242. Myrdal, Gunnar, Economic Theory and Under-Developed Regions, London, Gerald Duckworth, 1957, pp. 164.

Contrary to what orthodox teaching would lead one to expect, economic inequalities between nations are increasing. This is bound to happen whenever the free play of market forces is allowed to continue unchecked. Author argues that theories which assume equilibrating tendencies in economic affairs should be superseded by theories based on the principle of cumulative causation. If a backward community does not wish to remain caught in a vicious circle, it must deliberately interfere with the market forces in order to break it.

243. Noble, T. A. F., "Economic Progress in Underdeveloped Areas", Scottish Journal of Political Economy, Vol. III, No. 2, pp. 97-114.

The characteristics of underdevelopment are surveyed, and the various economic alternatives for development are discussed. Sources of capital formation are concentrated upon; the reliability of inflationary finance is questioned. Income distribution and the affect upon savings and growth are examined. Entrepreneurial scarcity, even with the possible alternative of state enterprise, is viewed as the fundamental issue.

244. North, Douglass C., "Location Theory and Regional Economic Growth", JPE, Vol. LXIII, No. 3, pp. 243-258.

A re-examination of location theory and the theory of regional economic growth in the light of the historical development of regions in America. Some propositions are advanced that may lead to a new theory of regional

economic growth. Critical of the view that a region passes through various stages--primary, secondary, and tertiary.

245. Nurkse, Ragnar, "Balanced Growth on Static Assumptions", EJ, Vol. LXVI, No. 262, pp. 365-367.

Critical of Fleming's analysis of the "doctrine of balanced growth" (see item 213), largely on the grounds that Fleming examines it under a series of static assumptions of his own making.

246. Owen, John P., "Methodology in Economic Development, A Comparative Analysis", The Southern Economic Journal, Vol. XXIII, No. 2, pp. 126-133.

A comparative analysis of methodological approaches to economic development, including (1) the evolutionary or institutional approach, (2) the psychological approach, (3) the functional approach, and (4) the structural approach. Methodological "pointers" suggested by author give highest priority to work which would provide knowledge of human motivation and of the interrelationships between social institutions and individual behavior patterns--need for integration and synthesis of contributions of the social sciences.

247. Pal, S., "Schumpeter and His Ideas on Economic Development", IJE, Vol. XXXV, pp. 129-142.

The long pattern of long-term economic change as presented in Schumpeter's Theory of Economic Development is critically reviewed.

248. Rostow, W. W., "The Take-Off into Self-Sustained Growth", EJ, Vol. LXVI, No. 261, pp. 25-48.

The "take-off" is defined as an industrial revolution tied directly to radical changes in methods of production, having their decisive consequence over a relatively short period of time. This article attempts to clarify the economics of industrial revolutions when defined as above.

249. Sheldon, C. D., "Some Economic Reasons for the Marked Contrast in Japanese and Chinese Modernization", Kyoto Economic Review, Vol. XXII, pp. 30-60.

This study examines the organization of certain Chinese shipping and trading enterprises in an attempt to throw some light on their compatibility to change and modernization, as compared with some Japanese counterparts.

250. Shigero, Fuji, "The Scale and Speed of Economic Development in Asiatic Countries", AA, Vol. I, pp. 12-23.

An attempt is made to evaluate the projects and the speed of progress in Asiatic countries. Conditions and requisites for economic development are examined. The conditions given special attention are capital, techniques, and market. The author cites the increased prevalence of "mental productivity" which he interprets as "physical productivity" in the future.

251. Slesinger, R. E., "Some Comments on Nonagricultural Possibilities for Raising the Levels of Living of Underdeveloped Nations", AER, Vol. XLVI, No. 2, pp. 327-336.

The author discusses the problem of development and concludes, "...the belief that economic development inevitably must be dissipated in population

growth causes gloom and pessimism. But if these countries are able to increase their national product through economic development, such need not be the case... this task is not an easy one."

252. Solow, Robert, "A Contribution to the Theory of Economic Growth", *QJE*, Vol. LXX, No. 1, pp. 65-94.

The bulk of this paper is devoted to a model of long-run growth which accepts all the Harrod-Domar assumptions except that of fixed proportions. Rather, it is assumed that the single composite commodity is produced by labor and capital under the standard neo-classical conditions. An exogenously given rate of increase of the labor force is worked out, and price-wage-interest reactions are also analyzed. Other rigid assumptions are relaxed slightly. Policy implications are briefly considered.

253. Spengler, J. J., "Sociological Value Theory, Economic Analysis and Economic Policy", *AER*, Vol. XLIII, No. 2, pp. 340-349.

The possibility of incorporating value analysis into the context of "manipulative economics" to accelerate development is considered. The role of different value systems is discussed. An analysis of circumstances that have led in the past to the acceptance of favorable values in replacement of adverse values.

254. Spengler, J. J., "Economic Factors in Economic Development", *AER*, Vol. XLVII, No. 2, pp. 42-57.

A survey of the factors affecting growth which are stressed in current literature.

255. Stamp, Dudley L., Our Underdeveloped Lands, London, Faber, 1953, pp. 187.

Deals with the problem of matching the world's use of its natural resources to the needs of its people. The possibilities of extending the area of food-producing land are discussed in detail. The tropics are considered areas of permanent difficulty. The middle latitudes are thought to contain much greater possibilities.

256. Stone, Richard, "Misery and Bliss: A Comparison of the Effect of Certain Forms of Saving Behaviour on the Standard of Living of a Growing Community", *EI*, Vol. VIII, pp. 72-91.

Presents a simple theory of economic growth, and the maintainable states associated with it (population, flow of consumption, etc.), then a theory providing for an optimal state in terms of assets per head. The last section presents a policy prescription designed to carry the community from the actual to the optimal state. This prescription is introduced in the form of a savings principle indicating how much a community ought to save if it is to obtain the highest standard of living which its technology will allow and how that saving is to be distributed over time in order to yield the largest possible stream of consumption.

257. Strassmann, W. P., "Economic Growth and Income Distribution", *QJE*, Vol. LXX, No. 3, pp. 425-440.

Given a sufficiently large population, economic growth depends not only on capital formation and technological progress, but also on growing income equality which the author re-defines as "consumption equality". With

a model and empirical data, an effort is made to underscore the importance of social homogeneity and resulting patterns of income equality as factors conducive to high productivity and the use of capital equipment.

258. Sumitro, Djojohadikusomo, "Macro Economics and Public Policy in the Economics of Underdeveloped Areas", *EKI*, Vol. VI, pp. 170-183.

Holds that a different set of economic and social conditions will throw a different light and often a new perspective on the principles and policies previously suggested by macro-economics. The fundamentally different nature of the problem and the issues, it is held, sets forth differently formulated economic objectives and procedures.

259. Takahashi, Kohachiro H., "On the Transition from Feudalism to the Bourgeois Revolution", *IJE*, Vol. XXXV, pp. 143-151.

Analyzes the way (or ways) in which capitalism emerged from the social system preceding it. The prime mover of the classical bourgeois revolution is said to be found in the development of the small and medium producers and of independent peasants. This is contrasted with Japan, where high bourgeoisie were linked with the totalitarian state power, and where capitalism was characterized by its oligarchical social structure and a bourgeois democracy was hindered from establishing itself.

260. Tiebout, Charles M., "Exports and Regional Economic Growth", *JPE*, Vol. LXIV, No. 2, pp. 160-164.

Critical of North's concept of the "economic base" as a major autonomous variable determining the level of regional income (see item 244). The purpose of this note is to show how the export-base concept fits within the more general theory of income determination and regional growth. Distinguishes between regional economic growth and economic development. In North's reply on page 165 of this same volume and number, additional points are raised, including a question regarding Tiebout's distinction between regional growth and economic development. See also Tiebout's rejoinder in the same issue, page 169.

261. Triantis, S. G., "Problems of Economic Development", *CJEPS*, Vol. XX, No. 1, pp. 107-111.

A review article of the United Nations Report on the economic and social conditions in Bolivia, and the IBRD reports on Ceylon, Cuba, Guatemala, Jamaica, Nicaragua, and Turkey.

262. Triantis, S. G., "Problems of Economic Development: A Reply", *CJEPS*, Vol. XXI, No. 2, pp. 241-244.

This is a reply to A. G. Frank's comments on the above (see item 215).

263. Vakil, C. N., and Brahmananda, P. R., Planning for an Expanding Economy, Bombay, Vora, 1956, pp. 399.

Concerned with the problems of disguised unemployment, capital accumulation, economic development of underdeveloped countries, and the attainment of a state of full employment at reasonable levels of real wages in as short a period as possible. The supply of labor is determined, it is held, by the supply of wage goods and the minimum real wages necessary for efficient working. The unemployment prevailing in these countries emerges primarily on account of an aggregate deficiency of supply of wage

goods. The way out, it is suggested, is through an expansion in the supplies of wage goods through measures of forced savings which, in turn, bring the consumption multiplier into action.

264. Wiles, P., "Growth Versus Choice", EJ, Vol. LXVI, No. 262, pp. 243-255.

Surveys the relation of economic growth to choice or scarcity economies; politically important not to limit arguments to backward-area growth. Range of topics includes: indefinite growth, growth and investment, and the effect of growth-consciousness upon scarcity economies.

265. Williamson, H. F., and Buttrick, J. A., eds., Economic Development--Principles and Practice, New York, Prentice-Hall, 1954, pp. xii + 576.

A collection of essays, designed for the student, by a number of authors on various aspects of economic development.

IV. Population, Labor, and UrbanizationA. Population

266. Boeke, J. H., "Western Influence on the Growth of Eastern Population", *EI*, Vol. VII, pp. 359-369.

The rise of population in Asia is attributed to the dissolving of repressive checks under Western influence. Asks why these forces should have served to foster economic development in the West and depress welfare and development in the East. Holds that the technical innovations of the West cannot further the interests and welfare of the rural masses; rather, the way to check overpopulation and foster economic development is through the communal ties of the village community.

267. Chandrasekhar, George, Population and Planned Parenthood in India, London, George Allen and Unwin, 1956, pp. xii + 108.

Examines the growth of Indian population in terms of fertility, morality, and social institutions. Finds that the standard of living of the people is not increasing commensurately with the growth of population. After a brief review of the agricultural possibilities, large-scale industrialization and migration, examines the place of family planning in a positive and democratic population policy for the country.

268. Chandrasekhar, George, Hungry People and Empty Lands, London, George Allen and Unwin, 1957, pp. 306.

The problems of international tensions arising from demographic and fertility differences are examined, with special reference to such thickly populated Asian countries as Japan, China, and India. Maintains that the bottling up in underdeveloped Asia of a billion people who are gradually coming into their own may have political, economic, and social repercussions which can hardly be conducive to international peace. As a way out, pleads for a World Population Policy involving (1) liquidation of Colonization, (2) widespread dissemination of contraceptive knowledge, (3) an International Migration Authority, (4) large-scale and rapid industrialization, and (5) worldwide development of scientific agriculture.

269. Clark, Colin, "Population Growth and Living Standards", International Labour Review, Vol. LXVII, No. 2.

An analysis of food supplies and population. Suggests the economic conditions which are required if the world is to provide an increase in the standard of living for the underdeveloped areas of the world.

270. Davis, K., "The Unpredicted Pattern of Population Change", *Annals*, No. 305, pp. 53-59.

Studies the relationship between population growth and the widespread poverty which is prevalent in the underdeveloped regions of the world. These changes in population growth are spurred on by the penetration of industrial nations into such areas and the changes which follow from better sanitation and health, and improvement in the standard and quality of living.

271. Davis, K., and Blake, J., "Social Structure and Fertility: An Analytic Framework", *EDCC*, Vol. IV, No. 3, pp. 211-235.

Presents, initially, a classification of the intermediate variables through which any social factors influencing the level of fertility must

operate; then seeks to show how some types and elements of social organizations, acting through these variables, appear to enhance or depress societal fertility.

272. Davis, K., "The Amazing Decline of Mortality in Underdeveloped Areas", *AER*, Vol. XLVI, No. 2, pp. 305-318.

Economic development is no longer a prerequisite for declines in mortality; the discovery of new methods of disease treatment applicable at reasonable cost is cited as the reason; the demographic consequences of declining mortality are also examined.

273. Enke, Stephen, "Speculations on Population Growth and Economic Development", *QJE*, Vol. LXXI, No. 1, pp. 19-35.

Suggests that social scientists consider carefully whether investment aid will so increase the populations of backward areas that no significant improvement in per capita consumption will occur. The thesis of the article is that there may be substantial long-run advantages in investing in urban facilities and plants, rather than in increasing the food supply through, say, land reclamation projects. Model set up to test thesis.

274. Indra, Raja R., Sinhalese Population Growth, 1911-1946, Monograph No. 7, Government of Ceylon Press, 1955, pp. 1-52.

A compilation of research on Ceylonese demography. Discusses the overall demographic position of Ceylon and makes particular reference to Sinhalese population growth during the period, 1911-1946.

275. Kellogg, C. E., "World Food and Agriculture Potentialities", *AER*, Vol. XLVI, No. 2, pp. 319-326.

The difficulties of forecasting based solely on physical and biological factors are discussed; additional relevant factors are explored; conclusion drawn is that available soils for agricultural use and production possibly exceed the population projections for this century.

276. Kirby, E. Stuart, "A New Approach to Population Policy in Asia", Far Eastern Economic Review, Vol. XIX, pp. 449-452.

The age structure (and consequent productive capacity) of developed and underdeveloped economies are compared, and the depressive effect of large families and unspaced births on the conditions of women and their economic and social productivity is cited. It is maintained that up to one-half of the national potential of underdeveloped countries is either unused or misused. Advocates the application of planned parenthood.

277. Mehta, F. A., "Economic Implications of Demographic Growth in India", *EI*, Vol. VIII, pp. 810-826.

Shows how, during the next three decades, the increase in the size of the population of India and the changes in the age composition of her people will affect and be affected by the availability of food supplies, by the realizable rate of capital formation, and by the creation of employment opportunities. The possibility of family planning as a factor mitigating the pressure arising both from the increases in the size of the population and from the changes in its age structure is discussed.

278. Myburgh, C. A. L., "Estimating the Fertility and Mortality of African Populations", Population Studies, November 1956, pp. 193-206.

Formulae are developed, with particular reference to African populations, for estimating the total fertility rate, the mean expectation of life, and the net reproduction rates from returns of the total number of children born and the number still living.

279. Penrose, E. F., "Malthus and the Underdeveloped Areas", *EJ*, Vol. LXVII, No. 2, pp. 219-240.

The question of whether the Malthusian theory is an internally consistent, valid conceptual scheme is separated from the question of whether it is adapted to the interpretation of events in the world of our experience. Is it more relevant to some periods of history than others? Finds that the Malthusian theory in the study of underdeveloped regions is greatly diminished by Malthus' failure to perceive fully the role of migration and trade.

280. Roy, Jyotirmoy, "Population Control in the Rural Sector", *IJE*, Vol. XXXVII, pp. 291-297.

On the basis of empirical investigation in the rural area, it is held that to more than 70% of the population the concept of family control is unknown. Various measures for inducing birth control are discussed; the extension of empirical population investigation is urged.

281. Russell, Sir John, World Population and World Food Supplies, London, George Allen and Unwin, 1957, pp. 513.

This work surveys (1) the distribution of the world's population, and (2) the food production of all countries specially important by reason of either their demands on the world food market or their contributions to it, or because of some methods of organization or production worthy of emulation elsewhere. Concludes that the more advanced countries can be reasonably assured of food supplies for an indefinite period. The less advanced nations can no longer rely on their old self-contained systems; they must seek cooperation with the advanced countries to supply them with the appliances needed for a more highly developed agriculture.

282. Sax, Karl, Standing Room Only: The Challenge of Over-Population, Boston, Beacon Press, 1955, pp. 206.

World resources of food, energy, and minerals; description of the conflicts between creeds and needs; emphasis on different states of population growth.

283. Spengler, J. J., and Duncan, O. D., Population Theory and Policy, Glencoe, Ill., The Free Press, 1956, pp. x + 522.

A book of readings on demographic analysis, population theory, and population policy. Selections are concerned mainly with the implications of demographic phenomena for social structure, socio-economic change, and welfare, and with applications of population theory to economic development.

284. Spengler, J. J., "Marshall on the Population Problem", (II) Population Studies, Vol. IX, pp. 56-66.

Reviewed are Marshall's treatment of the genesis of living standards and of the circumstances on which depend mortality, nuptiality, natality, and natural increase. It is concluded that Marshall's regard to population represents both a continuation of those of his predecessors and a break,

and serve to bridge the gap between the demographic theories of the classical economists and those expressed in the second quarter of the present century.

285. Spengler, J. J., "Capital Requirements and Population Growth in Underdeveloped Countries: Their Interrelations", EDCC, Vol. IV, pp. 305-334.
Among the subjects treated are: wealth classification; the substitutibility of reproducible capital for natural resources; the shortage, use, and formation of capital; impact of population and income growth upon capital requirements. It is suggested that the net efficiency of capital be judged in the light of both its income production and its natality reducing effect.
286. Spengler, J. J., "The Population Problem: Dimensions, Potentialities, Limitations", AER, Vol. XLVI, No. 2, pp. 337-351.
The population problem is defined and limitational factors examined; problem areas are delineated and courses of action for lessening the impact are explored.
287. Wertheim, W. F., "The Forty Percent Test, A Useful Demographic Tool", EKI, Vol. VIII, No. 3, pp. 162-183.
A new demographic device is suggested for underdeveloped nations lacking precise demographic data. It is maintained that, in general, 40% of the population of the underdeveloped areas is under 15 years of age. The author seeks to assess a minimum birth rate (in this case, for Indonesia), starting from the compositions of the population and from three alternative assumptions apropos infant and child mortality. The first assumption considers the lowest possible death rate under prevailing conditions; then an average and a maximum rate.

B. Urbanization

288. Bauer, Catherine, "The Pattern of Urban and Economic Development: Social Implications", Annals, No. 305, pp. 60-69.
Urbanization has been a key factor in the race between increased productivity and population growth because "it creates the milieu for modern industry and tends to reduce the birth rate". Urban centers often are responsible for developing a country's future political and economic leaders. Cities are where the basic social transformations begin.
289. Davis, K., and Golden, H., "Urbanization and the Development of Pre-Industrial Areas", EDCC, Vol. III, No. 1, pp. 6-26.
One of the assumptions is that urbanization is not only an excellent index of economic development and social modernization, but also a stimulus to such change. Urbanization rates and their significance for three diverse geographical areas are examined.
290. Hoselitz, B. F., "Generative and Parasitic Cities", EDCC, Vol. III, No. 3, pp. 278-294.
Attempts a general theory of the relations between urbanization and economic growth and cultural change. Seeks also to define some areas of further fruitful research in regard to this relationship.
291. Hoselitz, B. F., "The Role of Cities in the Economic Growth of Underdeveloped Countries", JPE, Vol. LXI, No. 3, pp. 195-208.

Suggests various problem areas and points to the importance of recognizing that there are different types of urban centers, and of explaining the moral, social-psychological as well as the economic and political consequences of urbanization.

292. Institute of Economic and Social Research, "The Urbanization of Djakarta", EKI, Vol. VIII, pp. 696-736.

The growth of Djakarta is traced. Particular emphasis is placed upon determining the problems connected with the cityward migration of rural people to Djakarta. The sources of the migrants, and the motivations for the migration are investigated. An attempt is made to diagnose the effect of urbanization upon these migrants.

293. Murphey, Rhoads, "New Capitals of Asia", EDCC, Vol. V, No. 3, pp. 216-243.

Seeks to illustrate the similar origins, natural growth, and current problems, the common economic and political developments which have underlain this similarity, and their present comparable positions as each makes of itself the core of a national rather than a colonial existence.

C. Labor

294. Aronson, Robert L., and Windmuller, J. P., eds., Labor Management and Economic Growth, Ithaca, N. Y., Institute of International Industrial and Labor Relations, Cornell University, 1954, pp. 251.

Papers read before the conference on Human Resources and Labor Relations in Underdeveloped Countries, held at Cornell in November 1953.

295. Hoselitz, B. F., "The City, the Factory, and Economic Growth", AER, Vol. XLV, No. 2, Papers and Proceedings 1954, pp. 166-184.

Distinguishes between industrialization and urbanization, and examines each of these processes separately in order to isolate their effect on economic growth both in developed and underdeveloped areas. The reconstructing of social relations caused by the mobilization of the labor force is held to be the most difficult problem in the industrialization process.

296. Moore, W. E., "Labor Attitudes toward Industrialization in Underdeveloped Countries", AER, Vol. XLV, No. 2, Papers and Proceedings 1954, pp. 156-165.

After rejecting two extreme theories on labor attitudes--i. e., (1) labor attitudes can be explained in terms of economic incentives satisfying human wants; and (2) they cannot be generalized about, for labor attitudes are a function of individual cultures--Moore then formulates the elements of a theory of labor attitudes geared to underdeveloped areas.

297. Nash, Manning, "The Recruitment of Wage Labor and Development of New Skills", Annals, No. 305, pp. 23-31.

One of the problems an underdeveloped country has to face is the formation and training of a labor force. In order to accomplish this task, one has to transfer workers from agricultural and other traditional pursuits to occupations connected with the "highly rationalized enterprise of modern production". To illustrate, the author discusses the case history of Cantel, an Indian community in the western highlands of Guatemala,

which illustrates the successful adaptation of a peasant society to industrial work. Points out the "social and cultural factors which appear crucial in this process of labor recruitment and commitment."

298. Ornati, Oscar, Jobs and Workers in India, Ithaca, New York, Cornell International Industrial and Labor Relations Reports, 1955, pp. 215.

This book is concerned with major problems affecting India's industrial workers. Some particular questions asked include: what is the impact upon the way of life of the workers of a trade union movement made up of unskilled and generally illiterate workers led by a politically motivated intelligentsia? What is the impact of the trade unions upon the development of an economy moving to a higher level of industrialization?

V. Capital Accumulation

299. Curley, John C., and Shaw, E. S., "Financial Aspects of Economic Development", AER, Vol. XLV, No. 4, pp. 515-538.

Points out that the accumulation of debt and financial assets, and in fact the role that finance plays in determining the pace and pattern of development, have been neglected. The following topics are briefly discussed: (1) the financial manifestations of income generation, spending and saving, investment, and the accumulation of wealth; (2) the role of financial institutions in transmitting loanable funds between spending units; (3) suggests that conventional theories of income, interest, and money have given insufficient attention to important reciprocal relationships between real development and financial development, and proposes some theoretical adaptations; and (4) implications of the analysis with particular emphasis on monetary aspects of economic policy and regulatory techniques.

300. Deane, Phyllis, "The Industrial Revolution and Economic Growth: The Evidence of Early British National Income Estimates", EDCC, Vol. V, No. 2, pp. 156-175.

The evidence of early British national income estimates is considered in illuminating the process of the first industrial revolution. Certain hypotheses relevant to contemporary economic development in other nations are derived from this data; and the process of industrial development in underdeveloped nations today is contrasted with that of England in the 18th century.

301. Higgins, B., and Malenbaum, W., Financing Economic Development, New York, Carnegie Endowment for International Peace, 1955, pp. 64.

Monograph discussing the various aspects of underdeveloped areas and their methods for financing economic development. Summation of most ideas on the methods of finance.

302. Kurihara, K. K., "Growth Analysis and the Problem of Capital Accumulation in Underdeveloped Countries", Metroeconomica, Vol. VI, pp. 108-117.

Discusses the required rate of capital formation for reducing underemployment and raising per capita real income. Offers a comparison of the required growth rate with the domestically attainable potential and feasible growth rates for determining imports and exports of developmental capital. The broader implications of the economic development of underdeveloped countries for international stability and amity are discussed.

303. National Bureau of Economic Research, Capital Formation and Economic Growth, Princeton, N. J., Princeton University Press, 1955, pp. 672.

A many-sided treatment by economists, historians, and a sociologist of the problem of the relation between economic development and the accumulation of the means of production. Some of the essays include an examination of the sources and channels of finance in capitalist nations; the experience of the Soviet Union; the effects of entrepreneurship and business organization; the relationship between invention and innovation to investment; etc. Henry Aubrey writes on "Investment Decision in Underdeveloped Countries", and Marion J. Levy, Jr., writes on "Some Social Obstacles to 'Capital Formation' in Underdeveloped Areas".

304. Nurkse, Ragnar, Problems of Capital Formation in Underdeveloped Countries, Oxford, Oxford University Press, 1953, pp. 163.
"--examines the weakness of investment incentives in low-income areas, the potential savings concealed in rural underemployment, and the effects of the attraction exercised by the living standards of advanced countries. While problems of foreign investment and trade policy receive equal prominence, the emphasis is on the need for domestic action..."
 305. Swan, T. W., "Economic Growth and Capital Accumulation", Economic Record, Vol. XXXII, pp. 334-361.
Illustrates, with diagrams, a theme common to Adam Smith and W. A. Lewis, viz., the connection between capital accumulation and the growth of the productive labor forces. An appendix discusses some of the questions--especially those raised by Joan Robinson--concerning the role of capital as a factor of production in the neo-classical theory.
 306. Swift, Michael G., "The Accumulation of Capital in a Peasant Economy", EDCC, Vol. V, No. 4, pp. 325-337.
In considering the role of capital within the peasant economy, some relevant aspects of Malay village society are described. The subject, capital, is treated in terms of three problems--saving, wealth, and social capital.
 307. Wolf, Charles, Jr., and Sufrin, S. C., Capital Formation and Foreign Investment in Underdeveloped Areas, Syracuse, N. Y., Syracuse University Press, 1955, pp. 134.
Concerned with (a) entrepreneurship and the demand for capital, (b) technological alternatives and the optimum use of capital, and (c) foreign investment and capital formation.
- A. Voluntary Savings
308. Bonne, Alfred, "Recent Changes in Levels of Living in the Middle East", Middle Eastern Affairs, Vol. V, No. 10, pp. 305-311.
The income per capita throughout various areas of the Middle East is discussed. The author concludes that, in spite of the prevailing levels of poverty, contact with higher spending income classes induces the lower income classes to extend the scope and range of their consumption habits.
 309. De Neuman, A. M., "The Plane of Saving and Thrift in Dynamic Economics", EKI, Vol. VIII, pp. 589-622.
Various "active" and "passive" concepts of savings in relation to consumption and investment.
 310. Huggins, H. D., "Employment, Economic Development and Incentive Financing in Jamaica", Social and Economic Studies, February 1953.
The methods for stimulating capital formation and industrialization are discussed in terms of promotional activities, methods of incentive financing, and the mobilization of "centers" of funds.
 311. Oanh, N. X., "Patterns of Consumption and Economic Development", EL, Vol. X, pp. 30-43.

The behavioral aspects of consumer demand, with specific reference to economic change, are studied. With the aid of several statistical operations, efforts are made to depict the regularities that typified the patterns of consumption in the economy of Japan, 1890-1937. Emulation consumption and asset consciousness are defined as characteristic consumption patterns of underdeveloped economies; the author calls for an effort to explore the possible effect of monetary factors upon the consumers' decision apropos the cash balances peculiar to the underdeveloped countries.

312. Okwara, O. Amogu, "Some Notes on Savings in an African Economy", Social and Economic Studies, Vol. V, pp. 202-211.

Points out that the deposits at the banks provide no true index to either the volume of capital or to savings in Nigeria. It is maintained that certain native institutions are doing what the banks could not do.

313. Solo, Robert, "The Accumulation of Wealth in the Form of Land Ownership in Underdeveloped Areas", Land Economics, Vol. XXXI, No. 2, pp. 156-160.

Considers the relationship of the accumulation of wealth in the form of land ownership to the rate of industrialization, real capital growth, and technological advance generally.

B. Fiscal Policy

314. Adler, John H., "Deficit Spending and Supply Elasticities", IJE, Vol. XXXVI, pp. 15-33.

Maintains that a deficit spending policy may be appropriate for a period of unemployment in an industrialized country, but it does not work in underdeveloped countries, where an increase in aggregate expenditures will result in a rise in the general price level, rather than an increase in the volume of output and the level of employment. The reason for this is explained through a low average price elasticity of supply--i.e., an inadequate response of production to price incentives.

315. Ahrens Dorf, J., "Public Policy and Capital Formation", EKI, Vol. VIII, pp. 753-763.

The tool of increasing savings and investment levels is reviewed in the framework of orthodox fiscal policy. A policy for converting disguised unemployment into positive investment is suggested in the light of Nurkse's thesis. The degree to which these mechanisms are applied is held to be dependent upon the rate of growth desired.

316. Bhargava, R. N., "Deficit Financing: Its Place in Fiscal Theory", IJE, Vol. XXXV, pp. 73-80.

The historical role of government finance is traced. Deficit financing is seen to be one of the weapons of "functional finance".

317. Bhatia, M. S., "The Role of Public Budgeting in an Underdeveloped Economy", IJE, Vol. XXXVI, pp. 117-124.

The orthodox mechanism of public finance and budgeting are outlined; the need for an underdeveloped economy to adopt and exercise progressive budgeting is emphasized.

318. Campbell, Colin, and Tullock, Gordon, "Hyperinflation in China, 1937-1949", *JPE*, Vol. LXII, No. 3, pp. 236-245.
A description of Chinese monetary experience which suggests a modification of the widely accepted principle that hyperinflation tends to drive currency out of use. Covers the period from the beginning of the Japanese invasion to the first year of Communist control of the mainland.
319. Campbell, Colin, and Tullock, Gordon, "Some Little Understood Aspects of Korea's Monetary and Fiscal System", *AER*, Vol. XLVII, No. 3, pp. 336-349.
The characteristics of the Korean monetary and fiscal systems as they are related to the problems of inflation in South Korea from 1945 to 1954.
320. Diamond, William, *Development Banks*, Baltimore, Johns Hopkins Press, The Economic Development Institute, International Bank for Reconstruction and Development.
An essay intended to stimulate thought on the subject of development banks and to provide guidance to underdeveloped countries. Based on a general view of development banks, but on a detailed knowledge of only a few, it raises many questions without claiming to answer them. The author is convinced that development banks cannot be discussed in isolation from other factors related to economic development.
321. Dye, H. S., "Development of the Banco Central in Argentina's Economy", *The Southern Economic Journal*, Vol. XXI, No. 3, pp. 303-318.
In narrating the history of the Banco Central, the author moves through depression, recovery, two world wars, and a gradual transformation of the Argentine economy; certain features of the Argentine industrialization movement are examined, as well as the role of the bank in economic development.
322. Ganjei, N. D., "Contributions of Tax Missions in Underdeveloped Countries", *EKI*, Vol. X, pp. 205-214.
General observations are made in regard to the contributions of tax missions in the development of the tax systems and administration of underdeveloped countries. The validity and applicability of various tax systems are discussed.
323. Ghosh, A. K., "Stability and Fiscal Policy in Underdeveloped Economies", *IEJ*, Vol. III, pp. 373-393.
Concern is with presenting fiscal policies capable of aiding a developing economy attain short-run stability and long-run growth. The character of development instability is examined; sundry fiscal stabilizers are analyzed.
324. Gill, K. S., "Three Concepts of Deficit Spending", *IJE*, Vol. XXXVII, pp. 247-288.
The role of deficit spending in economic development is defined. Three deficit concepts are discussed: negative deficit spending, called surplus spending; negative deficit budgeting, called surplus budgeting; and negative deficit financing, called surplus financing.
325. Greaves, I., "Sterling Balances and the Colonial Currency System: A Comment", *EJ*, Vol. LXIII, No. 252, pp. 921-923.

This note takes issue with Mr. Hazlewood's article on "Sterling Balances and the Colonial Currency System", EJ, December 1952, and maintains that currency funds do not alter the purchasing power of colonial populations.

326. Haskell, P. W., and Froomkin, J. N., Agricultural Taxation and Economic Development, Cambridge, Mass., Harvard University Press, 1954, pp. 439.

The main topics discussed are: (1) studies of the relation of agricultural taxation to economic development; (2) studies of possible administration and legal improvements; (3) studies of interrelations of taxation and land tenure; and (4) quantitative studies of tax incidence and effects.

327. Hazlewood, A., "Sterling Balances and the Colonial Currency System: A Reply", EJ, Vol. LXIV, No. 255, pp. 616-617.

In the December 1952 issue of the same journal, this author demonstrated that increases in the currency circulation of a colony under existing regulations force the colony to save an equal amount of its sterling resources, and hence reduce its ability to import, in spite of the fact that the sterling deposited with the currency authority is initially provided by a U. K. trading firm. This note is a reply to Dr. Greaves (see item 325), who maintains that currency rules impose no restrictions in imports. This reply points out that, with a 100% reserve system, funds paid over for currency are held and thus cannot be spent on imports.

328. King, F. H. H., "Sterling Balances and the Colonial Monetary Systems", EJ, Vol. LXV, No. 260, pp. 719-721.

The most recent in a series of notes, all on the above topic, in the Economic Journal, this one calls attention briefly to the colonial monetary system as it operates in British East Asia, and finds that no evidence has been submitted in any of the series of notes which warrants the conclusion that the 100% sterling reserve system should be modified.

329. Kurihara, K. K., "The Fiscal Role of Government in Economic Development", IJE, Vol. XXXVII, pp. 39-47.

Discusses the theoretical basis of developmental fiscal policy and then the fiscal role of government as (a) an investor, (b) a saver, and (c) an income redistributor--in the development of the productive capacity of underdeveloped countries.

330. Lewis, W. A., "Patterns of Public Revenue and Expenditure", Manchester School, Vol. XXIV, pp. 203-242.

The revenues and expenditures of 16 nations at different levels of economic development are compared. The main purpose is to examine how patterns of expenditure and sources of revenue vary with economic development, in the hope of discovering what patterns are appropriate to different levels of development. Statistics are presented at the end of the article.

331. Morgan, D. J., "Finance and Taxation in Jamaica", EJ, Vol. LXVII, pp. 347-353.

A review note on two official reports: (1) Report on Finance and Taxation in Jamaica, by J. R. and U. K. Hicks, Kingston, Jamaica, The Government Printer, 1955; and (2) The Financial System and Institutions of

Jamaica, by G. F. Towers, with a Memorandum on Monetary Policy by J. L. Fisher, Kingston, Jamaica, The Government Printer, 1955.

332. Niculescu, B. M., "Sterling Balances and the Colonial Currency System: A Comment", *EJ*, Vol. LXIV, No. 255, pp. 618-619.
A reply to the Greaves article (see item 325), which clarifies the workings of the Colonial Currency Board Systems.
333. Ono, K., "Inflation in the Early Era of Meiji", *Kobe University Economic Review*, 1956, pp. 27-35.
Analyzes the inflation and its cessation by a deflation policy in the early Meiji era (1868-1885). The general historical background of the period is reviewed, with the factors which engineered or necessitated the inflation. The role of the monetary and banking system during this period is traced.
334. Paauw, Douglas, "The Role of Local Finance in Indonesian Economic Development", *EKI*, Vol. VIII, pp. 2-24.
For economic development, fiscal functions should be aimed at exploiting the total tax base available to central and local authorities in such a way that: (1) maximum revenues are available to all levels of government to provide for surpluses above current expenditure for investment, and (2) resources throughout the economy are utilized most fully in both private and public sectors.
335. Pal, S., "Some Aspects of Monetary and Fiscal Policies for Economic Growth in Underdeveloped Countries", *IJE*, Vol. XXXVI, pp. 125-137.
Examines the relationship between increase in money supply and economic growth. This is studied, first in its historical perspective, and then in the context of the present-day underdeveloped countries. One point stressed is that economic development and a reasonable amount of financial stability are not mutually exclusive.
336. Prakash, Om., "Taxation Policy in a Transitional Economy", *IJE*, Vol. XXXVI, pp. 3-14.
The effects of taxes on income, property, and expenditure during a nation's transitional period.
337. Schiffer, C. F., "Banking in Underdeveloped Countries", *EKI*, Vol. VIII, pp. 79-97.
Concerned with the character of banking in underdeveloped nations and with the role of banking in the development effort. The contribution of banking in the history of economic development is traced. The task of attracting savings and the significance of central banking are discussed.
338. Smith, Warren L., "Monetary-Fiscal Policy and Economic Growth", *QJE*, Vol. LXXI, No. 1, pp. 36-55.
Considers the effects of various combinations of monetary and fiscal policies on the secular rate of growth and the problem of coordinating these policies in such a way as to keep the long-run growth tendencies consistent with the growth requirement for full employment without inflation.
339. Sumitro, Djojohadikusomo, "The Central Bank of Indonesia", *EKI*, Vol. VI, pp. 94-98.

The character of the Bank of Indonesia (the former Bank of Java) is reviewed as it was presented for Parliamentary approval in March 1953.

340. Young, Arthur N., "Saudi Arabian Currency and Finance", MEJ, Vol. VII, No. 4, pp. 539-556.

The article is Part II of an analysis of Saudi Arabia's financial problems. The author discusses the currency reform of October 1952, together with public finances. The opening pages of Part I of this study (MEJ, Summer 1953) supply a general introductory background.

C. International Sources

341. Cooke, Hedley V., "Foreign Investments in the Middle Eastern Region, 1944-1953", Middle Eastern Affairs, Vol. V, No. 4, pp. 109-115.

A grand total of business investments, loans, and grants during the period of 1944 to 1953 amounted to about \$3,800,000,000. This amount is itemized and commented upon by the author.

342. Dandekar, V. M., Use of Food Surpluses for Economic Development, Poona, Gokhale Institute of Politics and Economics, 1957, pp. 153.

Provides a study of rural poverty in India. Use of food surpluses is suggested as a solution of the problem. As an aid to development, the author suggests that food surpluses finance that part of project expenditure spent on food.

343. Hunter, J. M., "Long-Term Foreign Investment and the Underdeveloped Areas", JPE, Vol. LXI, No. 1, pp. 15-24.

It is suggested that the most important current problem of underdeveloped countries concerning foreign investment is "how much correction of the evils of foreign investment can be accomplished without reducing its flow below the level necessary to produce given results."

344. Huyck, Earl E., "The Colombo Plan: Progress on the Sub-Continent", MEJ, Vol. VII, No. 1, pp. 88-99.

The article gives the evolution and scheme of the Colombo Plan. Statistical surveys are included in the concluding pages.

345. Kovary, R., "An Industrial Development Corporation", EKI, Vol. VI, pp. 184-186.

The author advocates the establishment of a separate centralized corporation responsible for financing and establishing procedures for economic development projects.

346. Nurkse, Ragnar, "The Problem of International Investment Today in the Light of Nineteenth Century Experience", EJ, Vol. LXIV, No. 256, pp. 744-758.

A description of the nineteenth century environment and what made the flow of capital possible, as compared with the totally different situation today; a call for the revival of the public utility type of international investment, and remarks on international grants and their possible uses.

347. Pollock, Sidney, "The International Allocation of Resources: New Concepts and Problems of Administration", CJEPS, Vol. XXII, No. 4, pp. 461-466.

Problems briefly examined include: (1) difficulties faced by contributing countries in deciding the extent of aid which is appropriate to their economic circumstances and their political interests, (2) effective supervision, (3) control, and (4) coordination.

348. Richter, J. H., "Agricultural Surpluses for Economic Development", JPE, Vol. LXIV, No. 1, pp. 69-73.

A review of Uses of Agricultural Surpluses to Finance Economic Development in Under-developed Countries: A Pilot Study in India, FAO Commodity Policy Studies No. 6, Rome, June 1955.

D. Underemployment

349. Chandavarkar, A. G., "The Saving Potential of Disguised Unemployment", EJ, Vol. LXVII, No. 266, pp. 335-338.

Attempts to analyze some of the assumptions and limitations of the proposition advanced by Nurkse (see item 304) that "the state of disguised unemployment implies to some extent a disguised saving potential as well".

350. Kumar, D., "The Transfer of Surplus Labor from the Rural Sector", IJ, Vol. IV, pp. 355-365.

Maintains that the saving potential of India's large body of unemployed and underemployed is weakened by some factors which the model fails to consider. It is found that overall figures of unemployment, based on the number of days of unemployment per worker, will yield too large an estimate of labor available for employment outside the agriculture sector; agricultural production may fall. Also the difference between location of projects desirable and the areas of underemployment means that costs of housing, transportation, etc., will have to be incurred. Also it is held that the marginal propensity to consume of those whose incomes have increased is likely to be very high.

351. Leibenstein, Harvey, "The Theory of Underemployment in Backward Economies", JPE, Vol. LXV, No. 2, pp. 91-103.

Concerned with explaining the persistence of underemployment and positive wages in the special case where an independent agricultural labor force exists.

352. Lewis, W. A., "Economic Development with Unlimited Supplies of Labor", Manchester School, May 1955, pp. 139-191.

Proceeds from the classical tradition which argued that an unlimited supply of labor was available at subsistence wages. Inquiring how production grows through time, they found the answer in capital accumulation, which was explained in terms of their analysis of the distribution of income. The essay then seeks to determine, in the light of present knowledge, what can be made of the classical framework in solving problems of distribution, accumulation, and growth, first in a closed and then in an open economy.

E. Agricultural and Industrial Finance

353. Sharma, K. K., "Financial Institutions and the Private Sector in India", IJE, Vol. XXXVI, pp. 293-311.

Reviews the financial institutions created to provide promotion and financial help to the private enterprise sector of the Indian mixed economy. Institutions discussed include: the Industrial Finance Corporation of

India, the State Finance Corporations, the National Industrial Development Corporation, the Industrial Credit and Investment Corporation of India, and the International Finance Corporation. The great hiatus that has existed with respect to industrial finance is expected to be removed as a result of the establishment of these institutions.

354. Uzair, Mohammad, "Industrial Finance and State Initiative in Pakistan", *IJE*, Vol. XXXV, pp. 93-109.

The Pakistan of 1947 is compared with the state of Japan as she emerged immediately after the Meiji Restoration. The pattern of development in Japan is used by the author as a framework for discussing the needs of Pakistan. Particular attention is given to institutional banking and capital formation fostered by state initiative.

VI. InvestmentA. Direct Foreign Investment

355. Allen, G. C., and Donnithorne, A. G., Western Enterprise in Far Eastern Economic Development: China and Japan, London, George Allen and Unwin, 1954, pp. 292.

Describes the organization of the western business undertakings, the types of firms concerned, and relations between the Westerners and the native economies. An independent but related volume by the same authors appeared in 1957: Western Enterprise in Indonesia and Malaya.

356. Condliffe, J. B., Maffry, A., and McIntyre, F., "Corporate International Investment Policies and Programs", AER, Vol. XLIV, No. 2, pp. 611-633.

Condliffe: Introductory remarks. The London money market of the nineteenth century and the new types of investment are touched on briefly. Further study needed of the theory of capital movements.

Maffry: Direct versus portfolio investment in the role of balance of payments. Description of American investment before 1930. Direct investments, dollar exchange from foreign investment, as well as a forecast of future trends.

McIntyre: Foreign investment and trade policy. Importance and potential contribution of foreign investment and trade policy are conditioned by what has happened since the war. Emphasis on importance of the problem of servicing foreign investment. Maintains that most American foreign investment can be successful only if U. S. imports are increased.

357. Dalal, K. P., "American Direct Investment in Underdeveloped Countries", IER, Vol. III, pp. 53-66.

Studies the total volume of American foreign investment and its geographic distribution between the developed and underdeveloped regions. This investment in the underdeveloped areas is examined in relation to the major branches of economic activity into which it has gone, the extent of its net outflow, and the income derived from it. It is concluded that the flow of U. S. private capital during post-war years was only a small fraction of the total capital needs of the underdeveloped countries, and these countries will therefore have to depend largely on their own resources for their development.

358. Goodman, B., "The Political Economy of Private International Investment", EDCC, Vol. V, No. 3, pp. 263-276.

The literature on private foreign capital is reviewed. Expresses some doubts about the aspect of American foreign policy promoting a substantial increase in the outflow of such capital. Notes that there exist parts of the world where resistance to private foreign capital is important.

359. Macpherson, W. J., "Investment in Indian Railways, 1845-1875", Economic History Review, Vol. VIII, No. 2, Second Series, pp. 177-186.

An analysis of the reasons why British companies invested, and an attempt to discover the motives of the three principal groups interested in the venture; Indian government, investors, the promoting groups; principal conclusion is that investors are apparently favorable to overseas public utility investment if principal and interest are guaranteed.

360. Michaelis, Alfred, "American Investments in Asia", Indian Quarterly, Vol. XI, No. 3, pp. 271-277.

The author discusses the unequal distribution of American funds in foreign investments; emphasizes the need for increased private investments for the lesser developed areas.

361. Penrose, E. T., "Foreign Investment and the Growth of the Firm", EJ, Vol. LXVI, No. 262, pp. 220-235.

First part of the paper concentrates on General Motors-Holden's Ltd. in Australia. An example of a situation which emphasizes again the controversial aspect of foreign investment when the investment takes the form of the successful establishment of a foreign subsidiary enterprise in which the common stock is largely held abroad. Secondly, the general question of whether it makes any difference if foreign investment takes place through the expansion of existing foreign controlled firms or in some other form is also considered.

362. Wood, R., and Keyser, V., U. S. Business Performance Abroad: Sears Roebuck de Mexico, South American National Planning Association, 1953.

The first of a series of case studies of American business investments abroad. Emphasis on effect of Mexico's import tax in stimulating domestic investment, and the role of Sears' management techniques in developing local sources of supply, which in turn have the effect of stimulating indigenous capital formation.

B. Economic Leadership

363. Abdulla, Ahmed, "Pakistan Industrial Development Corporation", Pakistan Quarterly, Vol. IV, No. 1, pp. 48-54.

The Corporation was created by the Pakistani Government for the purpose of promoting industrial development within the nation. The article gives a brief account of PIDC, what it has thus far accomplished, and its proposed future undertakings.

364. Aubrey, Henry G., "Industrial Investment Decisions: A Comparative Analysis", JEH, Vol. XV, No. 4, pp. 335-351.

Takes issue with those who say the underdeveloped countries lack entrepreneurial initiative and who support their position by explaining the strength of traditional preferences in terms of the conservative static character alone. The author maintains that there are economic reasons for these attitudes that are related to the greater degree of certainty with which the prospects of traditional ventures can be appraised, compared with long-term industrial investment.

365. Belshaw, C. S., "The Cultural Milieu of the Entrepreneur: A Critical Essay", EEH, Vol. VII, No. 3, pp. 146-163.

An anthropologist attempts to demonstrate "... certain principles which relate the form of society and the characteristics of culture to the facility with which entrepreneurs emerge; ... some ways in which the forms of business leadership are related to social and cultural factors; and to indicate difficulties in obtaining criteria by which to judge the success or failure of business leadership in alien cultures."

366. Brimmer, Andrew F., "The Setting of Entrepreneurship in India", *QJE*, Vol. LXIX, No. 4, pp. 553-576.
Describes the origin, growth, and contributions to economic development of the Indian managing agency system--a type of industrial organization unique to India, in which promotion, finance, and administration of one or more legally separate and independent companies are controlled by a single firm. Designed to overcome problems of shortage of venture capital and business ability.
367. Brozen, Y., "Determinants of Entrepreneurial Ability", *SR*, Autumn 1954.
Discusses those factors affecting the quality and quantity of creative entrepreneurship: the prevailing religious ethic, the existence of extremes of social rigidity, recruiting and training practices, the stream of "new men" coming into the entrepreneurial sphere, society's rewards to entrepreneurs, and the ready access of entrepreneurs to capital.
368. Carlin, Edward C., "Schumpeter's Constructed Type--The Entrepreneur", *Kyklos*, Vol. IX, pp. 27-40.
Argues that a comparison between Schumpeter's entrepreneur type and a charismatic leader developed by Max Weber discloses certain factors that can be utilized to make the Schumpeterian construct a more useful tool. Maintains that certain analytical advantages can be realized if the entrepreneur type is viewed as a subtype of the Weberian type.
369. Choi, Kee Il, "Tokugawa Feudalism and the Emergence of the New Leaders of Early Modern Japan", *EEH*, Vol. IX, No. 2, pp. 72-91.
Discusses the factors in Tokugawa Feudalism which molded Japan's response to the shock of internal collapse and the stimulus of foreign penetration in the 19th century. It is the author's position that the response of the emergent leaders of the Meiji era can best be understood in terms of the changes that were occurring during the Tokugawa era.
370. Harbison, Frederick, "Entrepreneurial Organization as a Factor in Economic Development", *QJE*, Vol. LXX, No. 3, pp. 364-379.
Entrepreneurship should be treated as a resource which has both qualitative attributes and quantitative dimensions. Suggests a framework in which empirical studies of entrepreneurial resources would be related to other factors of production.
371. Higgins, B., "Aubrey on Industrial Investment Decisions", *JEH*, Vol. XVI, No. 3, pp. 350-354.
Additional comments on the general question, "Is the decision-making process different in underdeveloped countries from what it is in advanced ones?" (See item 364, and also Aubrey's reply following Higgins' comments).
372. Hoselitz, B. F., "Social Structure and Economic Growth", *EI*, Vol. 6, pp. 52-73.
Analysis of the functional interrelationship of economic and social variables involved in the transition from an economically underdeveloped to an advanced society. The social structural aspects of economic development are reduced to three questions, viz.: (1) what particular ways of deviant behavior in a "traditional" society will have the effect of altering a static system? (2) Which group of individuals in a given culture may

and/or do become the carriers of the innovating process? (3) Does this group arise as a consequence of peculiar social structural constellations of the culture in which it originates, or is it marginal culture in an ethnic, linguistic, religious, or other socially identifiable way?

373. Pelzel, John, "The Small Industrialist in Japan", *EEH*, Vol. VII, No. 2, pp. 61-93.

"...a case study of a group of small metal manufacturers whose industry dominates an industrial town suburban to Tokyo." Describes these entrepreneurs in terms of their social status in the Japanese organic hierarchy, their relation with the government and larger concerns, their technical and managerial skills, sources of capital, and social and educational background. There is some consideration of their changing situation since the 1930's.

374. Prakash, O., "Industrial Development Corporations in India and Pakistan", *EJ*, Vol. LXVII, No. 265, pp. 40-48.

A description of the role and structure of the industrial development corporations in India and Pakistan. A device for accelerating the rate of industrial growth and for overcoming the initial hesitancy of private enterprise to engage in development projects.

375. Rama Satri, J. V. S., "The Industrial Development Corporation: A Pioneering Enterprise", *IJE*, Vol. XXXV, pp. 110-111.

Governmental efforts in the field of industrial promotion are examined through the functioning and organization of the Industrial Development Corporation (IDC). Suggestions for the improvement of the system are made.

376. Ranis, Gustav, "The Community Centered Entrepreneur in Japanese Development", *EEH*, Vol. VIII, No. 2, pp. 80-98.

A discussion of the emergence of the samurai entrepreneur: the nationalism and religion which prompted and stimulated him; and the social and economic changes which accompanied the growth of the Zaibatsu after the Meiji Restoration.

377. Redlich, Fritz, "A Program for Entrepreneurial Research", *WA*, Band 78, Heft 1, pp. 47-64.

Ten research areas of entrepreneurial actions and activities are defined. It is maintained that, in fulfilling his primary role of decision-making in the enterprise, the entrepreneur becomes, *ipso facto*, a contributor to economic development; for this experience leads him to positions in government leadership; this, in turn, may lead to further rise in business and to more important contributions to economic development.

378. Rheinallt, J. D., "Economic Development and the African", *Colonial Development* (now known as *Commonwealth Development*), Summer 1953, pp. 12-14.

Belief is expressed that one of the primary tasks in Africa is to vitalize the African on his land. This task should begin with harnessing the will of the African to cooperate, through changes in land tenure, in agricultural methods, and in community organization. Training, housing, and welfare are discussed.

379. Silberman, Leo, "The Evolution of Entrepreneurship in the Process of Economic Development", *Annals*, No. 305, pp. 32-44.

Examines the reasons why entrepreneurship is still a novelty; the political and conceptual labors which in the underdeveloped territories are giving birth to entrepreneurship; the difficulties encountered may help in the discovering of new aspects connected with economic entrepreneurship.

380. Singer, H. W., "Obstacles to Economic Development", *SR*, Vol. XX, No. 1, pp. 19-31.

Reality is contrasted unfavorably with Schumpeter's "Theory of Economic Development" by showing that governments, not entrepreneurs, are the current agents of progress, that demand, not supply, governs production, and that old techniques, not new low-cost techniques, are adapted to increased consumption along old lines.

381. Smith, Thomas C., "Landlords and Rural Capitalists in the Modernization of Japan", *JEH*, Vol. XVI, No. 2, pp. 165-181.

An examination of the contributions of the rural capitalist class to the success of the Meiji Restoration that launched Japan on her career of modernization.

382. Wicker, E. R., "The Colonial Development Corporation", *The Review of Economic Studies*, Vol. XXIII, pp. 213-228.

The achievements of the Colonial Development Corporation are reviewed in relation to Britain's overall policy for the economic development of her colonial territories. Also considers: (a) the proper institutional machinery for carrying out development in underdeveloped countries, and (b) an adequate investment criterion to guide those responsible for the administration of development corporations.

VII. ProductivityA. Technology

383. Baldwin, R. A., "Patterns of Development in Newly Settled Regions", The Manchester School, May 1956, pp. 161-179.

Maintains that the technological nature of the production function for the major commodities initially selected for commercial production influences the potentialities for further development in newly settled regions. In conjunction with market conditions in the more developed areas, these engineering innovations affect the nature of factor migrations and the early distribution of income within a region. These latter affect the stimuli for further economic development.

384. Barloga, F. L., Burr, W. W., Shernman, D. R., and Stirton, W. E., "Report of the Technical Education Survey Team", EKI, Vol. VIII, pp. 637-684.

The educational and training institutions of Indonesia are analyzed. The report considers: classroom instruction and curricula; teachers; educational philosophy and projected planning; school administration; and school plants. A special section is devoted to agricultural education. Recommendations are provided in all areas under review.

385. Blaisdell, Thomas C., Jr., "Problems of Evaluating the Effectiveness of Development Measures", EDCC, Vol. II, No. 4, pp. 286-296.

Measures to appraise the results of the introduction of new technology in the old societies are critically discussed. The National Income measure is regarded as the most efficient.

386. Brozen, Y., "Determinants of the Direction of Technological Change", AER, Vol. XLIII, No. 2, pp. 288-302.

Examines the ideas that technological change is an endogenous variable and that the types of technological change accepted by a given society are influenced in part by the character, availability, and relative price of the innovation and the relative growth rates of different industries.

387. Haviland, W. E., "The Use and Efficiency of African Labour in Tobacco Farming in Southern Rhodesia", CJEPS, Vol. XX, No. 1, pp. 100-106.

At several key points in the discussion, a comparison between laborer efficiency in tobacco farming in Ontario and in Southern Rhodesia is made. Reasons and remedies for inefficiency in Southern Rhodesia are considered.

388. Jones, Wm. O., "Manioc: An Example of Innovation in African Economies", EDCC, Vol. V, No. 2, pp. 97-117.

Traces the spread of manioc through Africa prior to the time when the continent came under European political control. The significance of this is seen to be two-fold: it demonstrates that effective contact between European and African cultures long antedates the period of European political control; this acceptance of manioc by the African proves an example of willingness and ability of Africans to put new ideas to work.

389. Kirby, E. Stuart, "Fisheries Improvement in East Asia: Economic and Social Aspects", Far Eastern Economic Review, Vol. XIX, pp. 481-483.

The technical and economic impediments to effective fish production in the East Asian region are discussed and summarized. The techniques to overcome these defects are analyzed with particular reference to Hong Kong.

390. Meier, Richard L., Science and Economic Development: New Patterns of Living, Cambridge, Mass., Technology Press, MIT, 1956, pp. 266.

Traces new paths for economic development which are suggested by recent advances in science and technology. Draws upon a wide variety of up-to-date sources to provide estimates of the costs of new techniques suggested for underdeveloped areas.

B. Resource Allocation

391. Adler, John H., "The Economic Development of Nigeria: Comment", JPE, Vol. LXIV, No. 5, pp. 425-434.

Several general points raised by Bauer's review of the IBRD report, The Economic Development of Nigeria (see item 393) are discussed: government receipts and expenditures in an underdeveloped economy; burden of export duties; incidence of import duties; use of direct taxes and its limitations; and long-run rate of growth.

Additional comments on these and other points are to be found in Bauer's "Reply" in the same issue, p. 435.

392. Arndt, H. W., "External Economies in Economic Growth", The Economic Record, Vol. XXXI, pp. 192-214.

The classification of external economies and of the factors which give rise to them in underdeveloped economies is analyzed.

393. Bauer, P. T., "The Economic Development of Nigeria", JPE, Vol. LXIII, No. 5, pp. 398-411.

An evaluation of the IBRD report on Nigeria. The author refers briefly to the specific proposals of the report, examines some technical matters of wider relevance, and then appraises the general attitudes and lines of approach of the report.

394. Bohr, K., "Investment Criteria for Manufacturing Industries in Underdeveloped Countries", Review of Economics and Statistics, May 1954.

The four major factors which limit investments in manufacturing industries in underdeveloped countries are the scarcity of capital, shortage of labor, the scattered location, and the small size of markets. Devises methods for measuring various industries in terms of those criteria as a guide to future investments.

395. Chenery, Hollis B., "The Role of Industrialization in Development Programs", AER, Vol. XLV, No. 2, Papers and Proceedings 1954, pp. 40-57.

The influence of structural disequilibrium and external economies on the optimum amount and composition of industrial investment in a development program is described. The analysis is made in the context of a general equilibrium model based on data drawn from an overall study of the Italian economy and of the development programs for southern Italy.

396. Cumper, G. E., "Labor Productivity and Capital-Labor Ratio in Jamaican Manufacturing Industries: Their Relation to the Problem of Selective Industrialization", Social and Economic Studies, February 1953.

The differences among industries are analyzed in terms of the following: average annual wage, average net production per worker, value of fixed capital per worker. In the conclusions, Cumper recommends the types of industries which are considered to be most advantageous in capital-poor, labor-rich countries.

397. Dobb, M., "Second Thoughts on Capital Intensity of Investment", The Review of Economic Studies, Vol. XXIV, No. 1, pp. 33-42.

The ramifications of the degree of capital intensity in investment and the influence of this factor upon employment and subsequent economic growth are considered.

398. Eckstein, Otto, "Investment Criteria for Economic Development and the Theory of Inter-temporal Welfare Economics", QJE, Vol. LXXI, No. 1, pp. 56-85.

Indicates the kind of criteria that are needed for project selection, given some of the specific market imperfections found in underdeveloped areas. A model is constructed.

399. Galenson, Walter, and Leibenstein, Harvey, "Investment Criteria, Productivity, and Economic Development", QJE, Vol. LXIX, No. 3, pp. 343-370.

Consideration of the so-called "rule of social marginal productivity" and its corollaries, including the consequence that underdeveloped areas should choose industries and techniques requiring a lower capital/labor ratio than that prevailing in developed countries. Indicates briefly some of the institutions and practices characteristic of backward areas which must be accounted for in any theoretical formulation of economic development.

400. Gerhardsen, G. M., and Beever, C., "Some Aspects of Fisheries Development Economics", Far Eastern Economic Review, Vol. XVI, pp. 388-391.

Concern here is with all fishing activities which have come under the influence of economic planning. The alternative of producing factors necessary to tap the various fish resources are analyzed. Some of the problems which are likely to be encountered generally in fisheries development are enumerated. These include production, marketing, organization, and capital investment. Technical assistance to overcome the special risks inherent in fishery enterprise is advocated.

401. Higgins, B., "The Incremental Capital-Output Ratio", EKI, Vol. X, pp. 46-58.

Probes the conceptual and empirical problems surrounding the use of incremental capital-output ratios for development planning, with special reference to the Philippines. Comparative national ICCR statistics are included.

402. Ingram, James C., "Capital Imports and the Balance of Payments", The Southern Economic Journal, Vol. XXII, No. 4, pp. 411-425.

Economists have been led to advise developing countries to channel investment into export industries in order to minimize the balance of payments pressures generated by increased incomes and induced increases in imports. The principal argument of this paper is that these dangers have

been exaggerated, and that explicit recognition of the supply side of new investment will help to eliminate the economic basis for the present attitude.

403. Moore, W., "Problems of Timing, Balance, and Priorities in Development Measures", EDCC, Vol. II, No. 4, pp. 239-248.

Attention is given to some of the basic characteristics of underdeveloped areas. Also presented for discussion are: the aims of development programs; some alternative doctrines of strategy; and some suggested guides to choice of practical measures. The importance of organizations capable of introducing and fostering change is stressed.

404. Neisser, Hans, "Investment Criteria, Productivity, and Economic Development: Comment", QJE, Vol. LXX, No. 4, pp. 644-646.

Basically in accord with the thought expressed in the Galenson and Leibenstein article (see item 399). Argues, however, that the social cost of unemployment should be taken into account, and questions the significance of the rate of capital accumulation per capita as a principal proposition concerning the significance of investment policy. The Galenson-Leibenstein reply is to be found on p. 647 of this same issue. Additional comments about the original article appear in Vol. LXXI, No. 1, p. 161, under "Notes and Discussions"--John Moes.

405. Raj, K. N., "Application of Investment Criteria in the Choice Between Products", IER, Vol. III, pp. 22-39.

Deals primarily with investments which are meant to build up overhead capital for economic development.

406. Ravi, Indar Gulhati, "Criteria for Allocating Investments in Underdeveloped Economies", IER, Vol. III, pp. 107-113.

Discusses various interpretations of the Pigouian social marginal productivity principle.

407. Szczepanik, Edward, "An Introduction to the Economic Analysis of Fishery in the Far East", EKI, Vol. IX, pp. 406-417.

The income-generating potential of the fish industry, as a primary industry (but with secondary and tertiary ramifications) is explored. Cites the neglect of most of the nations in the Far East of their river and ocean resources. A fish industry is also pointed to as a method of earning foreign exchange and uplifting the nutritional value of the diet.

408. Vaidyanathan, A., "A Survey of the Literature on 'Investment Criteria' for the Development of Underdeveloped Countries", IEJ, Vol. IV, pp. 122-144.

Surveys the ideas on investment criteria. Distinguishes three different levels of approach to the problem. The first deals with the size and content of an investment program, and is concerned that no major dislocations in the country's external balance will result. The second views the problem as one of choosing from among a number of given alternative projects; a measure in choosing productivity to maximize social welfare is employed. These two are defined as partial equilibrium approaches; the third is a general equilibrium approach and is concerned with three basic questions: (a) what is the size of the investment? (b) What are the industries to be expanded and in

what magnitudes? (c) What is the level of techniques to be adopted in each industry?

409. Youngson, A. J., "The Disaggregation of Investment in the Study of Economic Growth", EJ, June 1956, pp. 236-243.

Seeks to explore means of clarifying discussion of investment in relation to economic growth. Surveys some possibilities in the field of investment analysis. Two methods of disaggregating total investment are suggested: (1) division of total investment into supply investment and demand investment, and (2) division of total investment into initiatory investment and complementary investment.

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THE AREA FILES STUDY OF AFGHANISTAN*

The first monograph of the Country Survey Series to be issued in final form by the Human Relations Area Files at Yale University is the volume on Afghanistan, written in part and edited by Donald N. Wilber of Princeton University. In addition to Professor Wilber, whose field is political science, the four other contributors are Elizabeth Bacon, an anthropologist with experience in the country; Charles Ferguson, a linguist at Harvard University; Peter Franck, an economist who was formerly advisor to the Afghan government; and Pieter Roest, an anthropologist and sociologist, formerly an area specialist in the U. S. Department of State. The Annotated Bibliography of Afghanistan, ix + 220 pp., also prepared by Professor Wilber and published separately by the Human Relations Area Files, is a valuable adjunct to the monograph and a guide to further reading on the country.

The monograph is based partly on written materials gathered from 70 books and periodical articles on Afghanistan which were analyzed according to some 700 cultural categories of the Human Relations Area Files, photographically reproduced, and deposited in the Washington, D. C., office of the Human Relations Area Files, as well as in its sixteen member universities in the United States. These published source materials were supplemented by systematic interviews with 15 Afghan students, residing at the time in the United States, and rounded out as far as possible from the principal authors' first-hand knowledge.

The major objective appears to have been to give an integrated account of political, economic, and social affairs in Afghanistan. As such, it achieves a considerable degree of success within the limitations of available information. The text is not a symposium in the usual sense, because the editor has blended his and the other authors' contributions so successfully that the hand of any individual can scarcely be identified. The treatment of the material is topical, but in only half a dozen of the chapters does the organization coincide with the major categories and sub-categories of the Human Relations Area Files. In other words, the volume is not a little encyclopaedia on Afghanistan, although the files would lend themselves readily to such treatment. The first four of the 23 chapters form an introductory section devoted to the general characteristics of Afghan society, the historical setting, geography and population, ethnic groups, and languages. Six chapters (V to X) are concerned with the structure and working of government. Six other chapters (XI to XVI) are devoted to the economic facts and problems of development, while the last seven chapters (XVII to XXIII) contain brief discussions of social, educational, artistic, intellectual, and religious aspects of present-day Afghanistan.

* Donald N. Wilber, Afghanistan, New Haven, Human Relations Area Files, 1956, xiii + 501 pp., bibliog., index, maps, tables.

The emphasis in most of the chapters on current affairs and the orientation throughout is towards the problems of Afghanistan's development as a modern national state. The historians will look in vain for a comprehensive chronological record of events. Disappointment is due to geographers who think that an "area study" represents a real geographic analysis of the country and its several regions. The anthropologists will be uneasy concerning the sketchy treatment of culture in terms of tribal units, on the one hand, and the attempted generalizations regarding the culture of the entire population within the country's territorial limits, on the other hand. Nowhere in the volume will the reader find an adequate account of the traditional life of the nomadic herding camps or the settled village communities which comprise the bulk of the country's inhabitants--a shortcoming due mainly to the lack of intensive field studies of the sort so frequently conducted in adjacent South Asian countries. Perhaps political scientists and economists will be most nearly satisfied with the treatment according to government and to production and exchange of goods. The volume presents for the first time in the United States a thorough summary of information concerning these latter aspects of Afghanistan and should be useful to American government officials and business agents on their initial acquaintance with the country. But it is clear that significant aspects of Afghanistan's historical evolution, geographic differentiation, and cultural integration remain virtually untouched. Indeed, it is an avowed purpose of the survey to point out the many voids in our present knowledge, and it is to be hoped that the publication of this volume will stimulate further research on certain aspects of the area and its inhabitants.

It is not my aim to point out the deficiencies of compilation and reproduction of the maps included, or to debate the factual accuracy of certain points in the text. It must be remembered that no good map coverage of Afghanistan exists, that no population census has ever been undertaken, and that scientific work of any sort is still in its infancy. Yet it is to be regretted that no reference is made to the United Nations' map of Afghanistan, scale 1: 2,000,000, 32 miles to the inch, printed in 1954, but unfortunately available for only limited distribution. Evidently use was made of reports of the several UN Missions to Afghanistan, but only the 1952 report of UNESCO is listed as a source. The results of the 1953-54 Danish expedition to Afghanistan were not available at the time of writing, as noted on page 49, but I wonder why no use was made of the partial account on an earlier Danish expedition, entitled *Pirzada*, written by Johannes Humlum and published in Danish in Copenhagen, 1950. Little or no use appears to have been made of two other valuable sources: M. G. Rieser's *Afghanistan: Economic-Geographical Characteristics*, Moscow, 1946 (in Russian); and Emil Trinkler's "Afghanistan", *Petermanns Mitteilungen*, *Erganzungsheft* No. 196, 1928. It is difficult, if not impossible, to identify the sources of many direct quotations and allusions to various authors embodied in the text. Surely the saving of space and labor does not justify the exclusion of all specific citations to authors or documents by page and title of publication in an exhaustive monograph of this sort.

A more fundamental criticism concerns the methodology of the Human Relations Area Files. The materials in the files are classified according to categories under ethno-linguistic groups, following the system conceived by Professor George P. Murdock in his original cross-cultural survey started some 20 years ago at Yale University. But the materials now are categorized also under countries, that is, according to areal units, which ordinarily do not

coincide with the territories occupied by single ethnic groups. Thus, a three-way scheme of classification has been established, which may result in unnecessary duplication of entries and expansion of the already bulky files.

For example, the Pushtuns, Persians (Tajiks), Uzbeks, and Turkomans constitute the largest linguistic groups in Afghanistan. But not one of these groups is exclusively Afghan, and all occupy territory outside the boundaries of the country. Theoretically, the materials pertaining to each must be placed also under Pakistan, Persia, and the USSR, as well as Afghanistan. This is not the end of the complications, because not only do tribal divisions exist within these linguistic groups in Afghanistan and the neighboring countries, but there are other groups, such as the Dardic-speaking Kafirs, which are spread across international boundaries. That this methodological problem has not assumed significant proportions in the case of the present monograph on Afghanistan is due as much to the lack of data on many of the ethnic groups as it is to the authors' efforts to qualify and restrict their statements to specific groups and/or geographic areas.

But the problem must assume vast proportions in large and complex countries like Pakistan and India. Will the materials on Punjabi and Bengali culture be filed under both Pakistan and India? How can valid generalizations regarding familial, village, and caste institutions be made in the monographs on these two countries in which the regional differences are as great as the national homogeneities? The files on Gujarati, Telegu, and Toda cultures, in addition to the general file on India, are already available for research use. There are at least a dozen more major linguistic groups and scores of minor tribes comprised within the areal limits of the Republic of India, all of which will merit analysis and for which source materials are available. It is with not a little interest that I look forward to publication of the forthcoming monograph on India to see how the methodological difficulty is met. Our knowledge and understanding of human relations would seem most likely to be advanced by rejection of the area classification and adherence to the ethnic classification of cultural materials.

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BOOKS RECEIVED

- Abeggjan, James G., The Japanese Factory, Aspects of its Social Organization, Glencoe, Ill., The Free Press, 1958, xvi + 142 pp., \$3.50.
- Allen, Robert Loring, Middle Eastern Economic Relations with the Soviet Union, Eastern Europe and Mainland China, University of Virginia, 1958, 128 pp., \$1.00.
- Bonne, Alfred, ed., The Challenge of Development, Jerusalem, The Eliezer Kaplan School of Economics and Social Sciences, The Hebrew University, 1958, 233 pp., \$4.00.
- Coolie Budget Commission, Robert Van Niel, trans., Living Conditions of Plantation Workers and Peasants on Java in 1939-1940, Ithaca, N. Y., Cornell Modern Indonesia Project, 1956, vi + 131 pp., \$1.50.
- Ginsburg, Norton, and Chester F. Roberts, Jr., Malaya, Seattle, Wash., University of Washington Press, 1958, xiv + 533 pp., \$6.00.
- Ginsburg, Norton, ed., with John E. Brush, Shannon McCune, Allen K. Philbrick, John R. Randall, Herold J. Wiens, The Pattern of Asia, Englewood Cliffs, N. J., Prentice-Hall, Inc., 1958, xiv + 929 pp., \$11.65.
- Glick, Philip M., The Administration of Technical Assistance: Growth in the Americas, Chicago, University of Chicago Press, 1957, xx + 390 pp. \$5.50.
- Hagen, Everett E., Handbook for Industry Studies, Glencoe, Ill., The Free Press, 1958, xii + 89 pp., \$3.50.
- Halpern, Joel Martin, A Serbian Village, New York, Columbia University Press, 1958, xiv + 325 pp., \$6.00.
- Husain, A. F. A., Human and Social Impact of Technological Change in Pakistan, Oxford, Oxford University Press, 1957, 2 Vols, xxii + 404 pp. and viii + 344 pp., \$2.65.
- ILO, Yearbook of Labour Statistics 1957, Geneva, International Labour Office, 1957, xvi + 536 pp., \$6.00 clothbound, \$5.00 paperbound.
- ILO, The I. L. O. in a Changing World, Report of the Director-General to the 42nd Session of the International Labour Conference, 1958, 12th Report of the International Labour Organization to the United Nations, Geneva, International Labour Office, 1958, 127 pp., \$1.00.
- Jennings, Sir Ivor, Problems of the New Commonwealth, Durham, N. C., Duke University Press, 1958, xvi + 114 pp., \$2.50.

- Leibenstein, Harvey, Economic Backwardness and Economic Growth, New York, John Wiley and Sons, 1957, xiv + 295 pp., \$6.75.
- Myers, Charles A., Labor Problems in the Industrialization of India, Cambridge Mass., Harvard University Press, 1958, xx + 297 pp., \$6.50.
- Nef, John U., Cultural Foundations of Industrial Civilization, Cambridge, Cambridge University Press, 1958, xvi + 164 pp., \$4.00.
- Presthus, Robert V., with Sevda Erem, Statistical Analysis in Comparative Administration: The Turkish Conseil d'Etat, Ithaca, N. Y., Cornell University Press, 1958, viii + 55 pp., \$2.00.
- Soedjatmoko, Economic Development as a Cultural Problem, Ithaca, N. Y., Cornell Modern Indonesia Project, 1958, iv + 23 pp., \$.50.
- UN, Economic Survey of Asia and the Far East 1957, United Nations, 1958, x + 261 pp., \$2.50.
- Wilensky, Harold L., and Charles N. Lebeaux, Industrial Society and Social Welfare, New York, Russell Sage Foundation, 1958, 401 pp., \$5.00.

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QUANTITATIVE ASPECTS OF THE ECONOMIC GROWTH OF NATIONS

*III. Industrial Distribution of Income and Labor Force
by States, United States, 1919-1921 to 1955*

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QUANTITATIVE ASPECTS OF THE ECONOMIC GROWTH OF NATIONS

III. INDUSTRIAL DISTRIBUTION OF INCOME AND LABOR FORCE BY STATES, UNITED STATES, 1919-1921 to 1955

Simon Kuznets, The Johns Hopkins University

I. Introduction

In the second paper in this series¹ we discussed the industrial distributions of the national product and labor force of different countries, using both cross-section analysis for recent years and time series. The aim of these international comparisons was to study the changes in these industrial distributions that accompanied economic growth, i. e., a rise in per capita income, and the resultant shifts in the intersectoral differentials in product per worker.

The discussion in the present paper parallels that in the earlier one: here again we deal with the industrial distributions of income and workers. But the economic units studied are in this case states within a single country, the United States. The purpose of the analysis is to see whether the findings suggested by international comparisons are confirmed or modified by comparisons for areas within a country.

This extension of the analysis is made for both analytical and statistical reasons. The former are suggested by the consideration that legal, cultural, and other obstacles to mobility among the various areas of a single country are far less formidable than those among separate, sovereign entities. Although some of these barriers may be greater for remote areas within one country, say Maine and Texas, than for contiguous areas belonging to two countries that enjoy amicable cooperation, say Maine and Quebec, the legal requirements are more of a hindrance for the latter than for the former. By and large, external boundaries to mobility are more formidable obstacles than internal. It is, therefore, of interest to see how in the process of growth the industrial distributions of income and labor force change in areas with different income levels or rates of growth which are not separated by legal and cultural barriers.

The statistical reasons are also weighty. A major difficulty in international comparisons lies in the elements of incomparability in the underlying data.

1. See Economic Development and Cultural Change, Supplement to Vol. V, No. 4, July 1957.

This paper draws heavily upon work in the field initiated under the auspices of the Committee on Economic Growth of the Social Science Research Council, as well as upon that of the National Income Division of the U. S. Department of Commerce. I am indebted particularly to Dr. Charles F. Schwartz of that Division for assistance in providing some unpublished components of the estimates. As with the other papers in the series, Miss Lillian Epstein provided continuous and valuable assistance in preparing the tables and editing the text.

They differ greatly in accuracy from one country to another, and for one country over time; and these differences in margin of error exist even if we accept the somewhat differing concepts--of income, of labor force, and of the industrial classification--that characterize the several complexes of national statistics. In an attempt to introduce comparability and adjust for different concepts, a further loss in accuracy may be incurred. Since the data for different areas within a single country are often prepared at a central source and are based on countrywide statistics gathered by one central institution (as is the case with the data used here), they are far more consistent and comparable than are international data. This consistency permits more detailed classification without endangering comparability and more intensive analysis is thus possible.

These reasons seemed to warrant this attempt to analyze the industrial distributions of income and labor force by states--even though the period for which trends can be observed is only from two and a half to three and a half decades. Whether the experiment is worthwhile, in that it will yield results of value in addition to those secured in the paper on international comparisons, can be judged only after it is completed.

The order of discussion follows that of the earlier paper, to which this one is in a sense a supplement. We begin with the industrial distribution of income, and study first the associations suggested by cross-section analysis and then the long-term movements. Next we take up the industrial distribution of the labor force, again beginning with cross-section analysis and following it with direct observation of the long-term trends. Finally, we consider the intersectoral differences in income per worker, again first the cross-section analysis and then the movements over time.

II. Industrial Distribution of Income

A. Area Units and Income Totals Defined

Throughout this paper the area units used are the forty-eight states: the District of Columbia is excluded because it is so distinctive in character. Even the forty-eight states differ widely in area, size of population, natural resources, and many other determinants of economic activity; and they are administrative rather than economic units. But the differences among them in all these respects are no greater than those among nations, and we employ these units as so many cases for which economic growth and its structure can be observed. At this stage of analysis, they are the only practicable unit; if the results show the need for different grouping, the feasibility and value of doing so can then be appraised.

The state income totals refer in general to income received by individuals and households (and quasi-associations of them) resident within each state. Consequently, parts of income produced in the country are omitted: undistributed profits of corporations and, for some definitions of national product, the savings or losses of governments. In the usual definitions of national income or the related concept of net national product, the excluded items are a minor fraction--certainly for the United States where the difference between national income and personal income (allocated by states) was less than 3 percent of the

former in 1929, somewhat larger in 1940, and about 5 percent in 1950.² There are some minor differences in definition between the Leven estimates for 1919-21 and the Department of Commerce estimates for 1929 and later years; but these will be noted when we make the comparisons. On the whole, personal income is close enough to national income so that the use of the former concept here to measure the relative economic position of states does not bar comparison with the analysis of international differences based on national income figures. National income is also largely the sum total of receipts by residents of a country in return for their direct participation, or for the participation of their capital, in economic activity: it is not the total of net output by productive agents located within the country, although for most countries the two totals are close.

How much of personal income allocated by state of residence of recipient can be distributed by industry of origin? Theoretically, it should be possible to distribute all personal income--wages, salaries, entrepreneurial receipts, and the various kinds of property income--except transfer incomes, the immediate source of which is government and the ultimate source of which is presumably the economy as a whole. But no data are available on the industrial source of property incomes (and, of course, transfer incomes) allocated by states. In other words, there are no estimates of the property income received by residents of any state originating in agriculture, manufacturing, public utilities, trade, etc. The industrial distribution is provided for what is called here "participation income"--the sum of wages and salaries, other labor income, and entrepreneurial income. The items excluded from the industrial distribution of income by states are dividends, interest, rent and royalties--the components of the purer property income--and transfer incomes. In this respect the scope of income allocable by states and by industrial sources is significantly narrower than that in the international comparison where national income is distributed by industry.

This limitation of the totals distributed by industrial source to participation income is of some advantage. First, any finding on the relation of income to labor force by industrial categories is much less questionable if we compare income resulting from direct participation with members in the labor force. Recipients of property income are not necessarily members of the labor force, and such income has only an indirect relation to the role of an individual as an employee or as an active entrepreneur. Our earlier comparisons for various nations had to be qualified since we were relating total income originating in an industry sector to the number of labor force members attached to it, and the industrial distribution of the latter may be different from the distribution of persons by the major industrial source of their income. No such qualification attaches to the analysis below.

Second, there is rough coincidence in area of participation income received by residents of a state and produced or earned within the state. By and large, a wage earner or salary recipient works in the state in which he resides, and the same applies to an active entrepreneur. It is true that a participation income recipient may live in one state and work in another--a matter of some importance for residents of New Jersey and Connecticut working in New York, or residents of Maryland and Virginia working in the District of Columbia. But although these are significant exceptions, they are nevertheless exceptions. By contrast, much of the property income received by residents of one state originates in firms

2. See National Income, 1954 Edition, Supplement to the Survey of Current Business, Table 4, pp. 164-165.

whose plants are located in other states; and the very question of the state of origin of property income, e. g., of dividends and interest paid by corporations with plants in a number of states, raises complicated problems of allocation that can be resolved only by arbitrary procedures. Limiting the totals to participation income has then an additional advantage in that for most states the industrial distribution of participation income received by residents and the industrial structure of that income produced within the state are similar--and comparable in this respect with total national income for most countries, since only a few derive large proportions of their national product from assets located outside their boundaries.

Finally, at least in this country since 1919, participation income constitutes the overwhelming share not only of personal income allocated by states but also of the more comprehensive national income total. In all the years selected for cross-section analysis participation income was more than three-quarters of national income (Table 1, line 1).

It is for this reason that the industrial distributions of participation and of total income, for the country as a whole, are fairly similar (Table 1, lines 2-13). The major discrepancy is in the share of the finance sector which, including as it does rent on owned homes and much of the property income originating in financial transactions, accounts for a much larger share of total than of participation income. The second relatively substantial difference is for the A sector, agriculture and related industries, in which property income is small relative to participation income and the sector share is therefore appreciably larger in participation income than in total income. For the other subsectors (and the two major sectors, M and S) the shares in the two income totals are within about one-tenth of each other. True, these are differences in the industrial distributions of the national totals, and for some states such differences may be wide. Indeed, as subsequent tables show, there are systematic differences among the states in the relative proportion of participation income in total personal income, and hence by inference between the industrial distributions within them of participation and total personal income. But the comparison in Table 1 does suggest that any broad similarities and differences established for the industrial distribution of participation income are likely to be true of the industrial distribution of total personal income, and even of a total corresponding to national income.

B. The Grouping of States for Cross-Section Analysis

Cross-section analysis has been carried through for the five points of time already noted in Table 1: 1919-21, 1929, 1940, 1950, and 1955. Except for 1919-21, when year-to-year variations were large and the crude character of the data warranted the use of three-year averages, single-year totals and their distribution were taken. It might have been somewhat safer to use longer periods even here, but since we wished to observe the cross-section associations at successive points of time to establish whether the connections found were relatively stable during the three to four decades covered, single years selected to span the full period were adequate. Besides, the detail of some of the Department of Commerce estimates was available for a few selected years alone; and to sacrifice detail for the small gain that might have resulted from using three- or five-year averages did not seem warranted.

As in the international comparisons, we grouped the states by income per capita. Income in this case was personal income as defined by the Department

Table 1.
Industrial Structure of Participation and of Total Income, Countrywide Totals, Selected Years, 1919-21 to 1955

| | 1919-21 | | 1929 | | 1940 | | 1950 | | 1955 | |
|------------------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|-------------------------|
| | Part. Income (1) | Total Income (2) | Part. Income (3) | Total Income (4) | Part. Income (5) | Total Income (6) | Part. Income (7) | Total Income (8) | Part. Income (9) | Total Income (10) |
| 1 % of total income | 80.9 | 100.0 | 76.9 | 100.0 | 79.9 | 100.0 | 81.4 | 100.0 | 80.6 | 100.0 |
| Percentage Shares of Major Sectors | | | | | | | | | | |
| 2 A | 17.0 | 13.7 | | | | | | | | |
| 3 M | 32.0 | 86.3 | 11.3 | 9.7 | 9.1 | 7.9 | 9.0 | 7.6 | 6.0 | 5.2 |
| 4 S | 51.0 | | 33.6 | 30.6 | 31.9 | 31.3 | 36.3 | 36.4 | 38.2 | 37.6 |
| | | | 55.0 | 59.8 | 58.9 | 60.8 | 54.7 | 56.1 | 55.8 | 57.3 |
| Percentage Shares of Subdivisions | | | | | | | | | | |
| 5 Mining | | | 2.4 | 2.4 | 2.2 | 2.2 | 1.9 | 2.0 | 1.6 | 1.8 |
| 6 Manufacturing | | | 25.6 | 23.8 | 25.8 | 25.9 | 28.6 | 29.4 | 30.4 | 30.6 |
| 7 Construction | | | 5.6 | 4.4 | 3.9 | 3.2 | 5.8 | 5.0 | 6.2 | 5.2 |
| 8 Trade | | | 18.9 | 15.5 | 20.4 | 17.6 | 20.5 | 18.0 | 19.5 | 17.0 |
| 9 Finance | | | 5.7 | 14.8 | 4.4 | 10.3 | 3.8 | 8.9 | 4.2 | 9.1 |
| 10 Transp. and public utilities | | | 10.0 | 10.6 | 8.8 | 10.3 | 8.2 | 8.6 | 8.0 | 8.6 |
| 11 Services | | | 13.0 | 12.1 | 12.2 | 11.2 | 10.9 | 10.0 | 10.9 | 10.3 |
| 12 Government | | | 7.4 | 6.0 | 13.1 | 11.1 | 11.3 | 10.3 | 13.2 | 12.0 |
| 13 Rest of world | | | - | 0.8 | - | 0.3 | - | 0.3 | - | 0.3 |

Col. 1 and 2: Underlying data are from sources cited in notes to App. Table 13, col. 1 and 2.

Col. 3, 5, 7, and 9: Underlying data are from sources cited in notes to App. Table 15, col. 7-9.

Col. 4, 6, and 8: Underlying data are national income minus corporate savings in the National Income, 1954 Edition, Washington, 1954, Tables 13 and 22.

Col. 10: Underlying data are from the Survey of Current Business, July 1957, Tables 13 and 22.

of Commerce--i. e., the sum of wages, salaries, and other labor income; entrepreneurial income; dividends, interest, rents and royalties; and transfer incomes; less personal contributions for social insurance--or an approximation to it in the case of the Leven estimates for the earlier years. These earlier estimates do not include transfer payments (which would have been quite small) and there is some question as to the coverage of "other" labor income. Furthermore, there are the expected differences in margins of error because of the weaker foundation of the early estimates. But by and large, the estimates are conceptually similar; and the distributions, if not the absolute levels, are fairly comparable. It should be emphasized that since we are interested here only in the associations between levels of income and industrial structure--not in the absolute income figures in the different years--the Leven estimates, while not as detailed as the Department of Commerce figures, are adequate.

We divided the forty-eight states into six groups of eight from an array for each year in descending order of personal income per capita. The state per capita incomes were averaged (arithmetic means) for each of these six groups--regardless of the difference among states in size of population; and the group averages so derived are shown as relatives of the countrywide average, also unweighted (Table 2, lines 1-5). The range from the highest to the lowest group is about 3 to 1 in 1919-21, 1929, and 1940, but drops sharply to about 2 to 1 in 1950 and 1955, reflecting the general reduction in inequality of income in this country. This range is, naturally, far narrower than that from the high to the low income nations in international comparisons, which is more than 15 to 1. Even allowing for an element of exaggeration in both sets of comparisons, it is clear that the range in per capita income among groups of regions in any one country is far narrower than that among nations, if only because internal mobility of resources and the pressure (upon the national authority) for amelioration of major discrepancies are far more effective than mobility of resources among nations or pressure upon some international authority or consensus to reduce international inequalities. This narrower range of per capita income among states than among countries is a basic datum in the interpretation of the results we shall derive here as contrasted with those derived in the earlier paper.

The range of per capita personal income, in current prices, exaggerates differences among states in purchasing power. As will be seen below, the low income states are characterized by larger shares of agriculture in income and the labor force--and hence by larger proportions of rural population. For comparable goods, prices are lower in rural areas than in urban.³ But even a sizeable allowance for rural-urban price differentials would not reduce the per capita income range in Table 2 materially. On the generous assumption of a 30 percent price differential and the extreme assumption that the states in group VI are 100 percent rural-farm and those in group I are 100 percent urban, the range shown in lines 1-5 would be cut about a third. A more realistic adjustment would mean a smaller reduction, probably not more than a fifth.

Since in studying the industrial distribution of participation income we relate it to numbers in the labor force, we experimented with an alternative basis for grouping the states--by participation income per worker. Averages (again unweighted) for eight groups of states arrayed by decreasing participation income

3. See Nathan Koffsky, "Farm and Urban Purchasing Power", *Studies in Income and Wealth*, Volume Eleven, National Bureau of Economic Research, 1949, pp. 151-219.

Table 2.
Total Income per Capita and Participation Income per Worker, States Grouped
on These Two Bases, Selected Years, 1919-21 to 1955

| | Arith. Mean 48 States, \$ (Unweighted) (1) | Relatives of Col. 1, for Groups of States | | | | | | Ratio of (2) to (7) (8) |
|--|---|---|------|------|------|------|------|----------------------------------|
| | | I | II | III | IV | V | VI | |
| | | (2) | (3) | (4) | (5) | (6) | (7) | |
| | | | | | | | | |
| <u>Total Income per Capita for Groups by Total Income per Capita</u> | | | | | | | | |
| 1 1919-21 | 565 | 1.48 | 1.21 | 1.04 | 0.93 | 0.77 | 0.56 | 2.64 |
| 2 1929 | 617 | 1.60 | 1.24 | 1.03 | 0.91 | 0.70 | 0.53 | 3.02 |
| 3 1940 | 540 | 1.59 | 1.24 | 1.01 | 0.90 | 0.71 | 0.55 | 2.89 |
| 4 1950 | 1,391 | 1.35 | 1.17 | 1.06 | 0.94 | 0.83 | 0.65 | 2.08 |
| 5 1955 | 1,700 | 1.37 | 1.16 | 1.03 | 0.93 | 0.83 | 0.68 | 2.01 |
| <u>Participation Income per Worker for Groups by Part. Income per Worker</u> | | | | | | | | |
| 6 1919-21 | 1,244 | 1.25 | 1.13 | 1.05 | 0.99 | 0.88 | 0.70 | 1.79 |
| 7 1929 | 1,224 | 1.34 | 1.19 | 1.07 | 0.99 | 0.81 | 0.60 | 2.23 |
| 8 1940 | 1,182 | 1.35 | 1.19 | 1.06 | 0.95 | 0.81 | 0.64 | 2.11 |
| 9 1950 | 2,922 | 1.23 | 1.14 | 1.05 | 0.99 | 0.87 | 0.71 | 1.73 |

For states included in specific groups see App. Table 15.

Lines 1 and 6: Derived from App. Table 13.

Lines 2-5: Derived from Personal Income by States since 1929, Washington, 1956, Table 2.

Lines 7-9: Derived from sources given in notes to App. Table 15, col. 7-9.

per worker are shown for 1919-21, 1929, 1940, and 1950 in Table 2, lines 6-9. Averages could not be calculated for 1955 since we have no estimates of the labor force by states. While these could be derived, it would have been difficult to secure an industrial allocation, and the full analysis could not have been carried through in any case.

No significant differences in the identity of the groups occur in the shift from the array by personal income per capita to that by participation income per worker (see Appendix Table 15). But there are apparently some states in which low income per capita is partly due to a low ratio of labor force to population, and others in which high income per capita is partly due to a high ratio of labor force to population. Even more important, the high income states have larger proportions than others of non-participation, i. e., largely property, income to total. As a result the range for groups by participation income per worker is narrower than that for groups by total income per capita: it is about 2 to 1 in most of the years covered, and does not drop much, at least between 1919-21 and 1950.

In general, we shall use total personal income per capita as the base for studying the association between economic growth and industrial structure because it is a more comprehensive measure of economic performance than participation income per worker and because it is more comparable with the base used in the international analysis. Thus, the question that we shall be asking is: if a unit, in this case the state, attains a higher level of economic performance (as measured by income per capita), what happens to the industrial structure of its participation income and labor force, and to its intersectoral per worker income differentials? We shall use the grouping by participation income per worker only

as a check--since it is more consistent with the scope of the income that is allocated industrially. As a matter of fact, both bases yield similar results, but the wider range of differences in income per capita permits a clearer picture of associated differences in industrial structure.

The difference in range between the groups based on total income per person and those based on participation income per worker is due largely to the effect of non-participation (or property) income. At least in the first three years, 1919-21, 1929, and 1940, the share of property income in total income was high in the high income per capita states and low in the others. Interestingly enough this systematic association virtually disappears in 1950 and 1955 (Table 3, lines 1-5).

Of greater bearing in the present connection is the proportion of participation income to total for groups based on participation income per worker. Here also the proportion is lower and hence the share of property income higher in the high income per worker states--at least during the first three years (lines 6-9). It follows that for the groups based on total income per worker, the range would have equalled at the minimum the product of the ranges in Tables 2 and 3. In other words, the range for 1919-21 would have been 1.8×1.4 or 2.5, compared with 2.6 for total income per capita (Table 2, line 1); for 1929-- 2.2×1.7 or 3.7, compared with 3.0 (Table 2, line 2); for 1940-- 2.1×1.7 or 3.6, compared with 2.9 (Table 2, line 3); for 1950-- 1.7×1.1 or 1.9, compared with 2.1 (Table 2, line 4). Clearly it is the association between high income per capita and the proportion of non-participation income in the total that accounts for the wider range in the group means for states arrayed by income per capita than in those for states arrayed by participation income per worker. In recent years, with the general reduction in the share of property income and in particular with its redistribution, this difference almost vanishes.

C. Cross-Section Analysis of Distributions by Three Major Sectors

The first industrial distribution of participation income that we consider is among the three major sectors, similar to those distinguished in the earlier paper. The A sector covers agriculture and the related minor industries, fishing and forestry, except in 1919-21 when it covers only agriculture. The M sector is a combination of mining, manufacturing, and construction. The S sector is the total of all service activities ranging from transportation and communication to trade, to finance, to personal, professional, domestic, and business services, to governments.

Three qualifications concerning the estimates for 1919-21 must be stressed. First, it was impossible, on the basis of the data prepared by Dr. Leven, to allocate non-agricultural entrepreneurial income to the M and S sectors for each state. We were therefore compelled to assign the total to the S sector--a choice dictated by clear evidence that by far the larger proportion of the income of non-agricultural entrepreneurs originates in the S sector.

This means that for 1919-21, the income share of the M sector is understated because of exclusion of the income of individual entrepreneurs belonging to that sector, and the income share of the S sector is correspondingly overstated. However, neither error is relatively substantial enough to vitiate the results completely, or to affect comparability with later years drastically. For the country as a whole in 1919-21, the total number of entrepreneurs in the M

Table 3.

Participation Income as Percentage of Total Income, Groups of States by Total Income per Capita and by Participation Income per Worker, Selected Years, 1919-21 to 1955

| | I | II | III | IV | V | VI | Arith. Mean I-VI (Unweighted) | Ratio of Share of Non-Partici- pation Income, I to VI |
|---|------|------|------|------|------|------|--|--|
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
| States Grouped by Total Income per Capita | | | | | | | | |
| 1 1919-21 | 79.7 | 79.7 | 84.8 | 83.6 | 84.5 | 88.1 | 83.4 | 1.7 |
| 2 1929 | 73.0 | 77.2 | 80.7 | 82.6 | 83.5 | 85.8 | 80.5 | 1.9 |
| 3 1940 | 76.3 | 81.6 | 81.0 | 82.9 | 84.4 | 87.0 | 82.2 | 1.8 |
| 4 1950 | 80.9 | 82.4 | 82.7 | 82.5 | 82.1 | 83.0 | 82.3 | 1.1 |
| 5 1955 | 83.1 | 83.2 | 82.3 | 83.2 | 85.0 | 85.1 | 83.6 | 1.1 |
| States Grouped by Participation Income per Worker | | | | | | | | |
| 6 1919-21 | 81.7 | 83.2 | 82.6 | 83.4 | 82.8 | 86.6 | 83.4 | 1.4 |
| 7 1929 | 75.2 | 77.3 | 80.9 | 81.3 | 83.1 | 85.0 | 80.5 | 1.7 |
| 8 1940 | 77.6 | 80.2 | 84.2 | 81.4 | 82.7 | 87.0 | 82.2 | 1.7 |
| 9 1950 | 81.2 | 83.2 | 82.6 | 83.0 | 80.6 | 83.0 | 82.3 | 1.1 |

For states included in specific groups see App. Table 15.

Entries in col. 1-6 are unweighted arithmetic means of percentages calculated for each state.

Sources are those given in Table 2 except that total personal income, 1929, 1940, 1950, and 1955 is from Personal Income by States since 1929, Table 1.

sector averaged some 0.38 million, compared with 13.2 million employees;⁴ the omission thus involving less than 3 percent of the total number engaged. Compared with about \$16 billion (per year for 1919-21) of compensation of employees in the M sector, total income of entrepreneurs averaged some \$0.9 billion, or less than 5 percent of the combined total.⁵ The understatement in the share of the M sector in both participation income and labor force is then relatively minor. In comparison with some 3.3 million entrepreneurs and some 14.7 million employees in the S sector, a total of about 18 million, the shift of 0.38 million entrepreneurs from the M to the S sector cannot lead to a significant overstatement.⁶ However, since these comparisons are based on nationwide totals, and those for some states may be affected to a greater degree, we should consider the 1919-21 allocations much cruder than those for later years.

The second qualification strengthens this conclusion. Much of the income by states in the S sector in 1919-21 is based on correlation with interstate

4. See Maurice Leven, Income in the Various States, National Bureau of Economic Research, 1925, pp. 21 and 23.

5. Simon Kuznets, National Income and Its Composition, National Bureau of Economic Research, 1941, Volume II, p. 578.

6. See Leven, op. cit., pp. 21 and 23.

differentials in income per worker in the M sector. To that extent the estimates for the M and S sectors are not independent of each other--as they are in later years, when they are based on a much greater wealth of direct evidence on sector incomes.

The third qualification is a minor one. Participation income in 1919-21 does include a slight amount of property income, i. e., the amount received by farmers. For the United States this item is \$0.43 billion, compared with the total participation income of \$52.1 billion. For some states, of course, the property income included may be a larger percentage of participation income. But we have included 1919-21 in the belief that the major differences or similarities between the evidence for that year and for the later years are sufficiently reliable to merit attention.

The first conclusion reached is analogous to the finding made in international comparisons. The dispersion in the shares of the A and the M sectors is far wider than that in the share of the S sector (Table 4). This difference is observed in all five years studied and in the three measures of dispersion--the ratio of the full range to the median, the ratio of the interquartile range to the median, and the ratio of the average deviation from the unweighted arithmetic mean to that mean. The differences are quite substantial: the measures of relative dispersion in the distributions by the shares of the A and M sectors are from two to six times as large as those for the distribution by the share of the S sector. Even the absolute dispersion by the share of the S sector is narrower, with just two exceptions in column 8 and one exception in column 10.

Obviously, there is widely differing concentration of activity among the various states on the A and the M sectors, and a much less variable share devoted to the S sector--for the reasons given in the discussion of international comparisons in the earlier paper. Like nations, states can devote a high proportion of their activities to the A or the M sector, relying on the exports of their surplus agricultural or industrial products to other states or elsewhere; whereas many services must be delivered by firms in close proximity to the consumers, i. e., within the state. And too, the diversity of services, which will be illuminated in the more detailed tables below, explains the limited range of the share of the S sector among states, despite the differing levels of economic performance.

In the present connection another observation is of some interest. In 1919-21 the median share of the A sector for the forty-eight states was 25 percent; that of the M sector, also 25 percent; that of the S sector, 49 percent. The median for recent years for some 59 nations was 34 percent for the A sector, and for 57 of these the median of the M sector was 22 percent and that of

Notes for Table 4.

Entries in col. 1-5 are arithmetic means of shares for three or four states. In col. 2-4 these are the four states centered on the quartile partition point, each extreme value weighted one-half.

Arithmetic means underlying col. 10 and 11 are from Table 5, col. 7.

1919-21: Derived from App. Table 13.

1929, 1940, 1950, 1955: Derived from Personal Income by States since 1929, Tables 64, 66, 69, and 70, adjusted to include earnings of military personnel, given in ibid., Tables 6-11, 13-17, 20-24, 26-32, 34-45, 47-50, 52-56, and 58-61.

Table 4
Partition Values and Measures of Dispersion, Distribution of States by Shares of Three Major Sectors in Participation
Income, Selected Years, 1919-21 to 1955

| | Lowest 3 States (1) | First Quartile (2) | Median (3) | Third Quartile (4) | Highest 3 States (5) | Full Range | | Interquartile Range | | Avg. Dev. from Arith. Mean | |
|-----------------------------------|---------------------------|--------------------------|---------------|--------------------------|----------------------------|----------------|---------------------------|---------------------|---------------------------|-------------------------------|---------------------------------------|
| | | | | | | (5)-(1) (6) | As Ratio to (3) (7) | (4)-(2) (8) | As Ratio to (3) (9) | Abso- lute (10) | As Ratio to Arith. Mean (11) |
| | | | | | | | | | | | |
| Distribution by Share of A Sector | | | | | | | | | | | |
| 1 1919-21 | 3.0 | 14.9 | 24.7 | 33.3 | 51.9 | 48.9 | 1.98 | 18.4 | 0.74 | 10.76 | 0.43 |
| 2 1929 | 2.1 | 9.9 | 17.3 | 25.4 | 45.3 | 43.2 | 2.50 | 15.5 | 0.90 | 9.66 | 0.51 |
| 3 1940 | 1.8 | 7.8 | 13.3 | 20.9 | 36.5 | 34.7 | 2.61 | 13.1 | 0.98 | 7.95 | 0.52 |
| 4 1950 | 1.9 | 6.7 | 12.6 | 17.4 | 39.7 | 37.8 | 3.00 | 10.7 | 0.85 | 7.68 | 0.54 |
| 5 1955 | 1.3 | 4.0 | 8.4 | 11.7 | 29.3 | 28.0 | 3.33 | 7.7 | 0.92 | 5.50 | 0.56 |
| Distribution by Share of M Sector | | | | | | | | | | | |
| 6 1919-21 | 7.9 | 18.4 | 24.75 | 35.0 | 52.6 | 44.7 | 1.81 | 16.6 | 0.67 | 9.77 | 0.36 |
| 7 1929 | 8.6 | 20.9 | 26.8 | 38.4 | 49.3 | 40.7 | 1.52 | 17.5 | 0.65 | 9.31 | 0.32 |
| 8 1940 | 9.5 | 19.7 | 25.85 | 34.6 | 47.6 | 38.1 | 1.47 | 14.9 | 0.58 | 8.80 | 0.32 |
| 9 1950 | 12.0 | 23.2 | 30.7 | 41.5 | 52.5 | 40.5 | 1.32 | 18.3 | 0.60 | 9.62 | 0.30 |
| 10 1955 | 14.8 | 25.6 | 32.7 | 42.1 | 53.3 | 38.5 | 1.18 | 16.5 | 0.50 | 8.40 | 0.25 |
| Distribution by Share of S Sector | | | | | | | | | | | |
| 11 1919-21 | 35.1 | 40.9 | 48.6 | 52.6 | 61.2 | 26.1 | 0.54 | 11.7 | 0.24 | 6.03 | 0.13 |
| 12 1929 | 42.5 | 46.4 | 50.7 | 56.9 | 65.8 | 23.3 | 0.46 | 10.5 | 0.21 | 5.58 | 0.11 |
| 13 1940 | 46.2 | 52.8 | 55.7 | 61.95 | 69.4 | 23.2 | 0.42 | 9.15 | 0.16 | 5.34 | 0.09 |
| 14 1950 | 42.9 | 48.05 | 51.8 | 59.4 | 67.4 | 24.5 | 0.47 | 11.35 | 0.22 | 6.00 | 0.11 |
| 15 1955 | 43.3 | 51.4 | 55.55 | 61.6 | 70.7 | 27.4 | 0.49 | 10.2 | 0.18 | 6.06 | 0.11 |

Notes for this table are at the bottom of the previous page.

the S sector was 40 percent (see Table 2 of the earlier paper). With the larger number of nations, separated by legal and cultural barriers, with far greater differences in historical heritage and economic performance than among the forty-eight states, one would expect the dispersions in the distributions of countries by the shares of the three major sectors to be far wider than in the distributions of states.

Yet the ratio of the full range to the median in the international comparisons was 1.8 for the distribution by the share of the A sector, 2.0 for the distribution by the share of the M sector, and 0.95 for the distribution by the share of the S sector. The same measure for the forty-eight states is 2.0 for the distribution by the share of the A sector, 1.8 for that by the share of the M sector, and 0.54 for that by the share of the S sector. Only for the last sector is the relative dispersion in the distribution of states significantly narrower than in that of some fifty-seven nations for recent years. This means that some states in this country, with relatively high shares of agriculture in income, have a far larger per capita income than many countries with shares of agriculture in income that are appreciably lower.

The implications of this finding become clearer when we consider the association between per capita income and the shares of the three major sectors in total participation income (Table 5). The association between per capita income and the share of the A sector is decidedly negative. In each of the five years the share rises fairly consistently as we move from group I to group VI, the only significant exception being in 1950, when the peak is reached in group IV with some decline thereafter. By contrast, there is definite positive association between per capita income and the share of the M sector: it is usually highest in group I and then drops to group VI. However, there is a tendency in the years beginning with 1929 for the trough to be reached in group IV with some rise in groups V and VI and this finding will be explored in the more detailed analysis below. The negative association of income per head with the share in income of the A sector, and the positive association with the share of the M sector for the states, parallel the findings in the international comparisons.

While this might have been expected, the differences in the shares of the A and M sectors among the several economic level groups of states are surprisingly wide--indeed almost as wide as in the international comparisons, whereas the relative range of income per capita is much narrower. The share of agriculture in groups V and VI is from 2 to 4 times as high as that in groups I and II (column 8). Table 3 of the earlier paper shows that for the 19 countries with the highest income per capita (groups I, II, and III), the average share of the A sector is about 17 percent, whereas that for the poorest 22 countries (groups VI and VII) is about 49 percent, or somewhat less than three times as large. The range in the share of the A sector in the international comparison is thus about the same as or narrower than those for 1929, 1940, and 1955, and not much wider than that for 1919-21 in Table 5. Yet the international range of per capita income is from about 1100 to about 150 for these groups, or over 7 to 1; whereas the range for the states between groups I and II and groups V and VI (derivable from Table 2) even in 1919-21 or 1929 is only about 2 to 1. Similarly, the range of the share of the M sector in the international comparison is from about 36 percent for the 19 countries with the highest per capita income to 16 percent for the 22 countries with the lowest per capita income, or less than 2.3 to 1. The range in this share in the state data is narrower in the early years (1919-21 and 1929), but still quite wide, about 1.75 to 1.

Table 5.
Arithmetic Means of Percentage Shares of Three Major Sectors in Participation
Income, Groups of States by Total Income per Capita, Selected Years, 1919-21
to 1955

| | Groups of States by Total Income per Capita | | | | | | Arith. Mean I-VI (Un- weighted) | Ratio of I+II to V+VI |
|--------------------------|---|-------|------|-------|-------|-------|---------------------------------------|-----------------------------|
| | I | II | III | IV | V | VI | | |
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
| Share of A Sector | | | | | | | | |
| 1 1919-21 | 12.7 | 15.4 | 25.6 | 28.2 | 30.3 | 38.4 | 25.1 | 0.41 |
| 2 1929 | 6.3 | 7.55 | 17.4 | 25.0 | 25.7 | 31.6 | 18.9 | 0.24 |
| 3 1940 | 5.3 | 8.45 | 13.3 | 19.3 | 22.5 | 22.1 | 15.2 | 0.31 |
| 4 1950 | 5.7 | 10.5 | 17.0 | 19.6 | 15.15 | 17.7 | 14.3 | 0.49 |
| 5 1955 | 3.3 | 5.9 | 8.6 | 11.85 | 12.3 | 16.6 | 9.8 | 0.32 |
| Share of M Sector | | | | | | | | |
| 6 1919-21 | 34.9 | 36.25 | 29.7 | 22.2 | 21.9 | 20.0 | 27.5 | 1.70 |
| 7 1929 | 37.3 | 40.05 | 31.0 | 20.85 | 23.3 | 21.15 | 28.9 | 1.74 |
| 8 1940 | 35.3 | 35.35 | 29.3 | 20.4 | 20.6 | 25.05 | 27.7 | 1.55 |
| 9 1950 | 40.3 | 34.9 | 31.9 | 24.3 | 30.85 | 31.05 | 32.2 | 1.21 |
| 10 1955 | 42.6 | 40.5 | 32.8 | 29.8 | 28.65 | 29.85 | 34.0 | 1.42 |
| Share of S Sector | | | | | | | | |
| 11 1919-21 | 52.4 | 48.4 | 44.7 | 49.5 | 47.9 | 41.6 | 47.4 | 1.13 |
| 12 1929 | 56.4 | 52.4 | 51.5 | 54.15 | 51.0 | 47.25 | 52.1 | 1.11 |
| 13 1940 | 59.4 | 56.2 | 57.4 | 60.3 | 56.9 | 52.85 | 57.2 | 1.05 |
| 14 1950 | 54.0 | 54.6 | 51.1 | 56.1 | 54.0 | 51.25 | 53.5 | 1.03 |
| 15 1955 | 54.1 | 53.6 | 58.6 | 58.35 | 59.05 | 53.55 | 56.2 | 0.96 |

For states included in specific groups see App. Table 15.

For sources see notes to Table 4.

Although the indicated range probably exaggerates the range in real income more in international comparisons than in those among states in a single country, it is still true that relatively minor differences in per capita income among states are associated with relatively sizeable differences in the shares of the A and the M sectors in participation income--and most likely also in total income. In the function which connects per capita income (\bar{x}) and the share of the A or the M sector (\bar{y} and \bar{z} respectively), for given percentage differentials in \bar{x} the negative parameter of \bar{y} and the positive parameter of \bar{z} are much larger in the comparison among states than in the comparison among countries. Or in other words, a given relative differential in income per capita is associated with larger differences in the shares of the A and M sectors among the states than among countries.

How can we explain this difference in the parameters of the function? One can argue that a high level of per capita income in an area unit is associated with a low share for the A sector because the demand by consumers for agricultural products is relatively limited and that for industrial products high. In such an argument per capita income is the independent variable, the cause as it were, and the low share of the A sector or the high share of the M sector the effect.

However plausible such an interpretation may be for self-contained areas and nations, it can hardly be relevant to states in this country, with its high mobility of resources and goods. Specifically, such an approach would not explain the finding just stated, since small income differentials--particularly at the high level of income prevailing in the United States--should not cause major relative changes in the proportions of demand for agricultural and industrial products. The explanation must lie, therefore, in the alternative approach with the industrial structure of the area the independent variable. One can then argue that the larger the share of output in the A sector--in which per capita incomes tend to be lower than in other sectors--and the smaller the share of output in the M sector, the lower per capita income tends to be. If this is the case, one can further argue that in a high income country like the United States, the general state of economic advance means a high level of per worker and per capita income in the A sector also; that, given the mobility of resources and advanced technology in all sectors of the economy, the A sector cannot operate at the low levels of underdeveloped or even intermediate range countries in combination with high level non-agricultural sectors. Hence, large differences in the share of the A or the M sector, resulting from far-reaching intranational division of labor, do not make for large per capita income differentials. The situation among countries is quite different. Here the differences in the shares of the A and M sectors are correlated with large differences in per worker or per capita productivity in these sectors; and insofar as there is a negative correlation between the share of the A sector and per worker or per capita productivity and a positive correlation for the share of the M sector, the wide international range in per capita income is the result of a combination of differences in shares of sectors with differences in intra-sector levels of productivity. If this argument is valid, we should expect, as a general rule, the parameters connecting the shares of the A and M sectors with intranational per capita income to be larger than those connecting the sector shares with international per capita income--provided the sample of nations covers the world range fairly well.

One implication of this finding should be noted. Differentials in real income per capita mean different structures of demand for goods, and in particular for products of the A sector relative to products of the M sector. By and large, the higher per capita income, the lower the proportion of demand for products of the A sector to that for products of the M sector. Limited differences in per capita income, such as we find among states in this country, mean narrow differences in the structure of demand, in the proportions of the products of the A and M sectors. Given such narrow differences in the proportions of demand for the products of these two sectors, wide differences in the shares of income originating in them mean necessarily extensive internal trade--in which states that specialize in the A sector export A products and the states with well above the average shares of the M sector export M products. The wider contrast between industrial structure and per capita income in the intranational comparisons than in international comparisons suggests, therefore, the relatively greater weight of internal trade relative to total output among area units within a country than of foreign trade relative to total output for most national units.

For years before 1940, the association between the share of the S sector and per capita income tends to be positive, with the sector's share generally higher in the high income states. But the range is quite narrow--indeed, narrower than in the international comparisons. Table 3 of the earlier paper suggests an average share of services for the 19 high income countries of about 47 percent compared with about 36 percent for the 22 low income countries, a

Table 6.
Arithmetic Means of Percentage Shares of Three Major Sectors in Participation Income, Groups of States by Participation Income per Worker, Selected Years, 1919-21 to 1950

| | Groups of States by Participation Income per Worker | | | | | | Arith. Mean I-VI (Un- weighted) | Ratio of I+II to V+VI |
|--------------------------|---|-------|-------|-------|------|-------|---------------------------------------|-----------------------------|
| | I | II | III | IV | V | VI | | |
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
| Share of A Sector | | | | | | | | |
| 1 1919-21 | 17.8 | 19.3 | 27.4 | 26.9 | 24.3 | 34.9 | 25.1 | 0.63 |
| 2 1929 | 5.75 | 11.65 | 19.1 | 19.3 | 28.9 | 28.8 | 18.9 | 0.30 |
| 3 1940 | 5.8 | 8.05 | 15.6 | 16.3 | 23.1 | 22.1 | 15.2 | 0.31 |
| 4 1950 | 9.4 | 7.9 | 18.7 | 17.15 | 14.7 | 17.7 | 14.3 | 0.53 |
| Share of M Sector | | | | | | | | |
| 5 1919-21 | 28.4 | 34.3 | 27.6 | 23.3 | 30.5 | 20.9 | 27.5 | 1.22 |
| 6 1929 | 37.2 | 38.65 | 28.1 | 28.85 | 17.8 | 23.0 | 28.9 | 1.86 |
| 7 1940 | 36.7 | 33.65 | 28.4 | 25.75 | 16.7 | 25.05 | 27.7 | 1.69 |
| 8 1950 | 36.85 | 38.8 | 26.85 | 30.35 | 29.4 | 31.05 | 32.2 | 1.25 |
| Share of S Sector | | | | | | | | |
| 9 1919-21 | 53.7 | 46.45 | 45.0 | 49.9 | 45.2 | 44.1 | 47.4 | 1.12 |
| 10 1929 | 57.05 | 49.7 | 52.8 | 51.85 | 53.3 | 48.2 | 52.15 | 1.05 |
| 11 1940 | 57.5 | 58.3 | 56.0 | 57.95 | 60.2 | 52.85 | 57.1 | 1.02 |
| 12 1950 | 53.75 | 53.3 | 54.45 | 52.5 | 55.9 | 51.25 | 53.5 | 1.00 |

For states included in specific groups see App. Table 15.

For sources see notes to Table 4.

ratio of 1.31 compared with one of about 1.1 in Table 5, lines 11 and 12.⁷ Furthermore, in the recent years the association in the state data practically vanishes. The uncertain nature of the association suggested by the state data, an impression that is strengthened by the irregular movements of the share in columns 1-6 even for the early years, is similar to that found in international comparisons--where the share of the S sector declined only in the very low income groups but not within the range from the high to the middle income countries. The reasons again lie in the heterogeneity of the sector and the necessarily localized character of the activities of many subdivisions which cannot be reduced below some minimum level regardless of the income position of the area.

To check the conclusions from Table 5 we regrouped the states on the basis of participation income per worker (Table 6). The main questions are whether the negative association of per unit income with the share of the A sector,

7. This wider range of the share of the S sector in income in international comparisons is not due to the inclusion of property income. The distribution of income between service (participation) and property incomes will be discussed in detail in the next paper in the series; but on the basis of preliminary explorations there is no evidence of a clear positive association in international comparisons between per capita income and the share of property income. Consequently, the inclusion of property income in international comparisons (and most falls into the S sector) cannot reduce the share of the S sector in the low income countries or raise it in the high income countries.

and the positive association with the share of the M sector remain, and show a wide range; and whether the rather tenuous association with the share of the S sector is still observed. The answers to these questions are all in the affirmative. The directions of the associations in Table 6 are identical with those in Table 5. For 1919-21, for which the data are subject to greater error than for any other year, the spreads in the shares of the three major sectors (column 8) are all narrower than in Table 5. Such narrowing of the range, as we pass from grouping by per capita income to that by participation income per worker, is found in some other years, but for shares of only some of the major sectors. However, this detail need not be emphasized here. The point to be stressed is that Table 6, with its different basis of classification, supports the conclusions of Table 5.

D. Cross-Section Analysis of Shares of Subdivisions of the M Sector

For the years beginning with 1929 we can estimate shares in participation income of the three subdivisions of the M sector--mining, manufacturing, and construction. Mining accounts for a relatively small share of income, about 2 percent on a countrywide basis, and for states the share may be somewhat erratic. Nevertheless, because of the distinctive nature of this complex of activities, we observe it separately. Manufacturing is by far the major subdivision of the M sector, accounting for a quarter or more of the countrywide total of participation income, and merits study in some detail. Construction is limited here to activities by construction firms and excludes those undertaken by firms using their own forces and engaged primarily in other activities. The share of construction thus defined varies from 4 to 6 percent on a countrywide basis.

Table 7 presents the characteristics of the distributions of states by the share in participation income of each subdivision. What strikes the eye immediately is the persistent difference among the three sets of distributions in concentration or dispersion. The dispersion is widest in the distribution by the share of mining, the share ranging from practically zero for the three lowest states to as high as a eighth, and even a fifth in the three highest states. The relative measures of dispersion, and only the relatives can be used here because the average levels of the shares of the subdivisions differ so markedly, are all far higher than those for manufacturing and construction.

The reason for such wide dispersion in the share of mining lies presumably in the spatial distribution of the natural resources. In some states mineral resources are abundant and exploited extensively; and if the richly endowed area constitutes a large proportion of the area of the state, or if the mining activity absorbs a large share of the state's population, the share of mining in participation income will be high. On the other hand, in some states natural resources are scarce or, if available, cannot be exploited profitably in competition with those in more richly endowed areas. This uneven distribution of natural mineral resources, and the possibly restraining effect of their occurrence upon development of other activities in the immediate vicinity may produce an equally dispersed distribution of the share of mining in income in international comparisons. For example, in countries like the Belgian Congo or the Union of South Africa the share is quite high and in others, like Italy and Argentina, is quite low.

By contrast the dispersion in the distribution of states by the share of construction is narrow, far narrower than in the distribution by the share of mining or manufacturing. The ratio of the average deviation to the mean, perhaps the most comprehensive and sensitive measure of the three shown in

Table 7.
Partition Values and Measures of Dispersion, Distribution of States by Shares of Three Subdivisions of the M Sector
in Participation Income, Selected Years, 1929 to 1955

| | Lowest 3 States (1) | First Quartile (2) | Median (3) | Third Quartile (4) | Highest 3 States (5) | Full Range | | Interquartile Range | | Avg. Dev. from Arith. Mean | |
|--|---------------------------|--------------------------|---------------|--------------------------|----------------------------|----------------|---------------------------|---------------------|---------------------------|-------------------------------|------|
| | | | | | | (5)-(1) (6) | As Ratio to (3) (7) | (4)-(2) (8) | As Ratio to (3) (9) | | |
| | | | | | | | | | | | |
| Distribution by Share of Mining | | | | | | | | | | | |
| 1 1929 | 0.0 | 0.4 | 1.45 | 4.6 | 19.5 | 19.5 | 13.45 | 4.2 | 2.90 | 4.18 | 1.06 |
| 2 1940 | 0.0 | 0.4 | 1.3 | 5.3 | 16.8 | 16.8 | 12.92 | 4.9 | 3.77 | 3.51 | 1.02 |
| 3 1950 | 0.1 | 0.3 | 1.0 | 4.2 | 14.4 | 14.3 | 14.30 | 3.9 | 3.90 | 2.76 | 1.01 |
| 4 1955 | 0.1 | 0.3 | 1.0 | 3.6 | 13.2 | 13.1 | 13.10 | 3.3 | 3.30 | 2.71 | 1.01 |
| Distribution by Share of Manufacturing | | | | | | | | | | | |
| 5 1929 | 2.9 | 11.3 | 18.2 | 28.7 | 41.5 | 38.6 | 2.12 | 17.4 | 0.96 | 9.58 | 0.47 |
| 6 1940 | 2.9 | 10.5 | 23.2 | 29.8 | 42.9 | 40.0 | 1.72 | 19.3 | 0.83 | 10.00 | 0.49 |
| 7 1950 | 4.2 | 13.0 | 22.2 | 34.75 | 45.9 | 41.7 | 1.88 | 21.75 | 0.98 | 10.95 | 0.47 |
| 8 1955 | 4.9 | 14.9 | 24.6 | 34.1 | 46.4 | 41.5 | 1.69 | 19.2 | 0.78 | 9.96 | 0.40 |
| Distribution by Share of Construction | | | | | | | | | | | |
| 9 1929 | 2.5 | 3.4 | 4.3 | 5.85 | 8.9 | 6.4 | 1.49 | 2.45 | 0.57 | 1.42 | 0.30 |
| 10 1940 | 2.1 | 3.15 | 3.7 | 4.4 | 6.9 | 4.8 | 1.30 | 1.25 | 0.34 | 0.84 | 0.22 |
| 11 1950 | 4.5 | 4.9 | 5.6 | 7.1 | 9.3 | 4.8 | 0.86 | 2.2 | 0.39 | 1.15 | 0.19 |
| 12 1955 | 4.2 | 5.35 | 6.4 | 7.2 | 10.2 | 6.0 | 0.94 | 1.85 | 0.29 | 1.11 | 0.17 |

For sources see notes to Table 4.
Arithmetic means underlying col. 10 and 11 are from Table 8, col. 7.

Table 7, is from about a third to a fifth of that for mining, and beginning with 1940 about a half of that for manufacturing. The relative dispersion for construction is significantly narrower whereas the dispersion for both mining and manufacturing is significantly wider than that for the M sector (see Table 4). Again, the reason is not far to seek. This subdivision, particularly if we exclude activities on their own account by manufacturing, public utilities, and other firms, is dominated by residential and closely related construction (stores, offices, municipal utilities serving population, etc.). It is largely local activity, pursued mostly within the state in which the population that its product will serve resides. And it is an activity that is positively connected with the state's population and income level. Construction in a state cannot be disproportionately large in order to supply out-of-state markets--as is the case in agriculture, mining, manufacturing, and similar types of production; nor can it be disproportionately small, since a minimum amount of local housing and related structures must be assured. Under the circumstances, it is surprising to find a range as wide as 2.5 to 8.9 percent of participation income in 1929--and a possible explanation is that discrepancies among the states in the timing of the crest of the construction boom of the 1920's accentuated the dispersion. Significantly, in 1950 and 1955, the two years of full volume of construction activity, the relative range is far narrower.

Dispersion of the share of manufacturing alone is wider than that of the M sector as a whole. Manufacturing is clearly an activity in which intensive division of labor among the states, and hence a wider range in degree of concentration, is more likely than in construction--and hence than in the M sector.

But what about the association of these shares with per capita income? The movement of the share of mining clearly suggests a negative association with income per capita (Table 8, lines 1-4). True, as we go down the scale of per capita income, the rise in the share reaches a peak in group V, and the share for group VI is again low, in two years (1929 and 1940) lower even than for group I. But the relatively consistent and sizeable rise of the share from column 1 to column 5 confirms the impression of a negative association.

The reasons can be only conjectured. Certainly mining activities have profited from advantages of technological progress: the size of the firm, unlike that in agriculture, is large, and there is ground to assume that capital and entrepreneurial skill are available for exploiting the greatly increased technological knowledge in the area. Average annual earnings per full-time employee in mining were quite close to those in manufacturing in 1929, 1940, and 1950, and in most other years.⁸ Yet it may be that the extensive nature of mining operations is not conducive to the growth of dense, urban areas; and its equally negative effects on agriculture, associated with the natural environment of rich mineral deposits, may also hinder population growth, which is eventually the base for urbanization. But a glance at the list of states in group V, the one in which the share of mining is largest, does not support these arguments: the states that fall fairly regularly within that group are Virginia, West Virginia, Oklahoma, Louisiana, Texas (in the earlier years), and New Mexico (see Appendix Table 15). With the exception of the last, these are all in the South and the large share of mining is due to a combination of adequate mineral resources with a large share of low income agriculture. To put it differently, given a sufficient supply of mineral resources, the share of mining will be higher in the

8. See National Income, 1954 Edition, Table 27, pp. 200-201.

Table 8.
Arithmetic Means of Percentage Shares of Three Subdivisions of the M Sector in Participation Income, Groups
of States by Total Income per Capita, Selected Years, 1929 to 1955

| | Groups of States by Total Income per Capita | | | | | | Arith. Mean I-VI (Un- weighted) | Wider Groups | | |
|-------------------------------|---|------|------|-------|-------|-------|---------------------------------------|--------------|--------|-------|
| | I | II | III | IV | V | VI | | I+II | III+IV | V+VI |
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) |
| Share of Mining | | | | | | | | | | |
| 1 1929 | 2.8 | 1.6 | 3.8 | 6.1 | 7.9 | 1.4 | 3.93 | 2.2 | 4.95 | 4.7 |
| 2 1940 | 2.7 | 2.35 | 2.2 | 3.7 | 7.4 | 2.3 | 3.44 | 2.5 | 2.95 | 4.8 |
| 3 1950 | 1.05 | 2.15 | 1.5 | 3.3 | 6.2 | 2.15 | 2.73 | 1.6 | 2.4 | 4.2 |
| 4 1955 | 1.2 | 1.6 | 2.2 | 3.1 | 6.2 | 1.7 | 2.67 | 1.4 | 2.65 | 3.95 |
| Share of Manufacturing | | | | | | | | | | |
| 5 1929 | 28.0 | 32.5 | 21.9 | 10.95 | 11.7 | 16.35 | 20.2 | 30.25 | 16.4 | 14.0 |
| 6 1940 | 27.95 | 29.0 | 23.6 | 12.6 | 10.0 | 18.95 | 20.3 | 28.5 | 18.1 | 14.5 |
| 7 1950 | 32.9 | 26.5 | 24.8 | 14.1 | 18.5 | 23.6 | 23.4 | 29.6 | 19.45 | 21.05 |
| 8 1955 | 34.2 | 32.8 | 23.1 | 20.0 | 16.45 | 22.75 | 24.9 | 33.5 | 21.55 | 19.6 |
| Share of Construction | | | | | | | | | | |
| 9 1929 | 6.5 | 5.95 | 5.3 | 3.8 | 3.7 | 3.4 | 4.78 | 6.2 | 4.55 | 3.55 |
| 10 1940 | 4.65 | 4.0 | 3.5 | 4.1 | 3.2 | 3.8 | 3.87 | 4.3 | 3.8 | 3.5 |
| 11 1950 | 6.35 | 6.5 | 5.6 | 6.9 | 6.15 | 5.3 | 6.13 | 6.4 | 6.25 | 5.7 |
| 12 1955 | 7.2 | 6.1 | 7.5 | 6.7 | 6.0 | 5.4 | 6.48 | 6.65 | 7.1 | 5.7 |

For states included in specific groups see App. Table 15.
For sources see notes to Table 4.

low income states than in the high income states--since the volume of mining is a function not of income but of supply of mineral resources, and since productivity, the per worker income, is greater in mining than in agriculture. The drop in the share of mining in group VI must therefore be associated with relative scarcity of mineral resources. The states fairly continuously in group VI--Mississippi, Arkansas, Tennessee, North Carolina, South Carolina, Kentucky, Georgia, and Alabama--are by and large not endowed with substantial mineral deposits.

The correlation between per capita income and the shares of manufacturing and of construction is positive. The shares of both decline from group I to group VI in all four years. Given the general stability of the share of services, and the negative association between income and the share of the A sector, the association with the share of the M sector must be positive. Since within the M sector the association with the share of mining is, on the whole, negative, that with the share of manufacturing and construction combined must also be positive. Since construction is primarily a local industry, one may assume that the income level affects the demand for housing and related construction--particularly in urban communities--and the higher the per capita income of a state, the larger the share of construction in participation income. Furthermore, the association between income level and urbanization and the greater cost of residential and related construction in urban than in rural areas also make for a positive association between income and the share of construction.

Why should the association between the share of manufacturing and per capita income be positive? Per worker earnings in manufacturing, while higher than those in agriculture, are, on the whole, lower than those in the service sector. It is true that if, for the sake of sharpening the argument, we assume the share of the S sector to be the same at all income levels, and accept the negative association with the share of the A sector, the positive association between per capita income and the share of manufacturing (by far the largest subdivision of the M sector) is an algebraic necessity. But more revealing reasons for the association can be suggested. The development of manufacturing generally means a concentration of population in urban communities--if only because of the minimum or optimum scale of manufacturing plants. The emergence of manufacturing then calls for complementary activities--transportation, trade, etc.--and thus produces urban agglomerates. As manufacturing grows, the weight of these city-rooted activities may become larger. Per capita income in any one state will be raised because the proportion of urban activities with their high per capita income increases while that of rural activities with their low per capita income declines. In other words, a large share of manufacturing tends to be accompanied by high per capita income not only because of higher (than in agriculture) per worker incomes (a much more important factor in international comparisons) but also because large manufacturing complexes give rise to a variety of high per worker income service activities.

In the present connection, another aspect of the association between income and the share of manufacturing should be examined. While, on the whole, the share of manufacturing in participation income declines as we go down the scale of states by per capita income, it is lowest not in group VI but in either group IV or group V. Indeed, the share of manufacturing in participation income in group VI is quite high, in two years close to the share for group III.

The Department of Commerce provides the apportionment within each state, for a few selected years, of manufacturing wages and salaries among

some twenty branches.⁹ The total is, of course, smaller than participation income since it excludes other labor income and entrepreneurial income. But the reduction in scope is not so large as to render the distributions meaningless for analyzing shares in participation income. In 1939, total participation income originating in manufacturing amounted to \$14.7 billion and wages and salaries to \$13.6 billion, or well over 90 percent; and the relation of the two totals in 1955 was not much different.¹⁰ We can, therefore, argue that the distribution by branches of manufacturing of wages and salaries is probably close to that of total participation income.

Table 9 shows the percentage distribution of manufacturing wages and salaries, for 1939 (since the data are not available for 1940) and 1955, among the several branches, for states grouped by decreasing income per capita. In this case we did not compute the percentage shares for each state and calculate unweighted arithmetic means of shares. Instead, we added the absolute totals for each group of states and then calculated the percentages, which are therefore weighted (by total manufacturing wages and salaries in each state). For our purposes this departure from the usual procedure made little difference, and the saving in calculation was substantial.

The classification in Table 9 is much the same as that in Personal Income by States since 1929 (Tables 71 and 78), except that, to avoid cumbersome detail, we combined some closely related branches. In both years, food and tobacco, machinery except electrical and electrical machinery, transportation equipment except automobiles and automobiles were combined; in addition, in 1939 iron and steel and their products were combined with nonferrous metals and products, and in 1955 instruments were combined with miscellaneous. Thus, instead of twenty or twenty-one branches, we show sixteen for 1939 and seventeen for 1955. Unfortunately, primary metal production and the output of the more fabricated forms of metals are combined in 1939, whereas in 1955 they are distinguished, as they should be for our purpose.

The shares in total manufacturing wages and salaries of some manufacturing branches tend to increase as we move from high to low income states, whereas the shares of others tend to drop (Table 9, particularly columns 7, 8, and 9). The shares that are associated negatively with income per capita are those of food and tobacco, textiles, lumber, furniture, paper (definitely only in 1955), chemicals, petroleum (definitely in 1939), and stone, clay, and glass. All of these, with the possible exception of furniture, are raw-material oriented in that they absorb large volumes of raw materials, and, except for food and tobacco, convert them not into highly complicated and finished products but into goods that in turn provide materials for what might be called the fabricating branches of manufacturing. On the other hand, the branches whose shares in

9. The allocation in this case does not incorporate residence adjustments, i.e., adjustments for the differences between the location of the paying enterprises and the residence of income recipients (see Personal Income by States since 1929, p. 100). For the broad analysis used here this element of incomparability between the allocation of manufacturing wages and salaries by states and for the twenty branches, and those of the other components of personal income by states, is of little significance.

10. For 1939 see National Income, 1954 Edition, Tables 15, 16, and 17; for 1955, the Survey of Current Business, July 1957.

Table 9.

Arithmetic Means of Shares of Manufacturing Industries in Total Manufacturing Wages and Salaries, Groups of States by Total Income per Capita, 1939 and 1955

| Industries | Groups of States by Total Income per Capita | | | | | | Wider Groups | | |
|---------------------------------|--|------|------|------|------|------|--------------|--------|------|
| | I | II | III | IV | V | VI | I+II | III+IV | V+VI |
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) |
| A. 1939 | | | | | | | | | |
| 1 Food and tobacco | 11.0 | 10.2 | 16.3 | 25.2 | 21.8 | 13.0 | 10.6 | 20.8 | 17.4 |
| 2 Textiles | 9.6 | 4.4 | 4.5 | 5.5 | 25.1 | 29.5 | 7.0 | 5.0 | 27.3 |
| 3 Clothing | 12.5 | 4.0 | 4.0 | 3.3 | 1.7 | 4.9 | 8.2 | 3.6 | 3.3 |
| 4 Lumber | 1.0 | 3.0 | 2.5 | 8.5 | 6.3 | 9.9 | 2.0 | 5.5 | 8.1 |
| 5 Furniture | 2.6 | 3.0 | 4.2 | 4.7 | 4.0 | 5.1 | 2.8 | 4.4 | 4.6 |
| 6 Paper | 3.2 | 2.9 | 5.4 | 2.8 | 3.0 | 2.5 | 3.0 | 4.1 | 2.8 |
| 7 Printing | 8.5 | 6.6 | 6.6 | 9.1 | 5.5 | 4.7 | 7.6 | 7.8 | 5.1 |
| 8 Chemicals | 5.9 | 3.7 | 3.4 | 7.8 | 6.6 | 6.7 | 4.8 | 5.6 | 6.6 |
| 9 Petroleum | 1.8 | 1.0 | 1.6 | 7.6 | 5.1 | 0.8 | 1.4 | 4.6 | 3.0 |
| 10 Rubber | 1.7 | 2.2 | 1.3 | 0.3 | 0.1 | 0.9 | 2.0 | 0.8 | 0.5 |
| 11 Leather | 3.7 | 1.7 | 6.3 | 1.4 | 0.5 | 1.4 | 2.7 | 3.8 | 1.0 |
| 12 Stone, clay, and glass | 2.6 | 3.7 | 3.5 | 4.0 | 6.5 | 3.3 | 3.2 | 3.8 | 4.9 |
| 13 Metals and metal products | 12.8 | 22.1 | 16.4 | 6.0 | 9.7 | 12.6 | 17.4 | 11.2 | 11.2 |
| 14 Machinery (incl. electrical) | 12.6 | 15.8 | 14.9 | 8.1 | 2.5 | 2.4 | 14.2 | 11.5 | 2.4 |
| 15 Transp. equip. and autos | 5.6 | 13.3 | 7.7 | 4.2 | 1.0 | 1.3 | 9.4 | 6.0 | 1.2 |
| 16 Miscellaneous | 4.9 | 2.4 | 1.4 | 1.5 | 0.6 | 0.7 | 3.6 | 1.4 | 0.6 |
| B. 1955 | | | | | | | | | |
| 1 Food and tobacco | 7.6 | 6.0 | 14.8 | 17.2 | 12.8 | 11.2 | 6.8 | 16.0 | 12.0 |
| 2 Textiles | 2.0 | 4.0 | 1.7 | 2.2 | 11.9 | 26.0 | 3.0 | 1.9 | 19.0 |
| 3 Clothing | 6.1 | 3.7 | 3.0 | 2.6 | 4.6 | 5.8 | 4.9 | 2.8 | 5.2 |
| 4 Lumber | 1.6 | 2.1 | 9.4 | 4.4 | 8.0 | 7.1 | 1.9 | 6.9 | 7.6 |
| 5 Furniture | 1.8 | 1.7 | 2.1 | 1.6 | 2.4 | 4.0 | 1.7 | 1.8 | 3.2 |
| 6 Paper | 2.7 | 3.1 | 6.4 | 3.5 | 5.6 | 4.1 | 2.9 | 5.0 | 4.8 |
| 7 Printing | 6.2 | 4.3 | 6.4 | 5.7 | 3.9 | 3.3 | 5.3 | 6.0 | 3.6 |
| 8 Chemicals | 5.4 | 4.0 | 3.8 | 7.5 | 12.2 | 9.6 | 4.7 | 5.7 | 10.9 |
| 9 Petroleum | 1.6 | 1.6 | 0.8 | 7.1 | 4.4 | 0.8 | 1.6 | 4.0 | 2.6 |
| 10 Rubber | 1.2 | 3.4 | 1.0 | 1.3 | 0.5 | 1.4 | 2.3 | 1.1 | 0.9 |
| 11 Leather | 1.2 | 1.8 | 4.1 | 1.7 | 0.8 | 1.2 | 1.5 | 2.9 | 1.0 |
| 12 Stone, clay, and glass | 2.6 | 4.2 | 3.3 | 3.7 | 5.7 | 2.7 | 3.4 | 3.5 | 4.2 |
| 13 Primary metals | 6.5 | 16.4 | 4.9 | 5.5 | 6.2 | 7.1 | 11.5 | 5.2 | 6.6 |
| 14 Metal fabric. | 9.1 | 8.5 | 8.0 | 5.5 | 5.2 | 4.7 | 8.8 | 6.7 | 4.9 |
| 15 Machinery (incl. electrical) | 19.9 | 20.4 | 18.7 | 13.9 | 4.5 | 7.2 | 20.1 | 16.3 | 5.9 |
| 16 Transp. equip. and autos | 18.4 | 10.8 | 7.4 | 14.6 | 9.9 | 2.7 | 14.6 | 11.0 | 6.3 |
| 17 Misc. (incl. inst.) | 6.3 | 4.0 | 4.2 | 2.1 | 1.4 | 1.1 | 5.1 | 3.2 | 1.3 |

Notes for this table are at the bottom of the following page.

the total manufacturing wage and salary bill are positively associated with income per capita are mostly of the highly fabricating type: clothing in contrast with textiles, machinery and equipment of various types, printing in contrast with paper, and the miscellaneous group (dominated by such complex products as instruments, jewelry, toys, etc.). The contrast is not perfect, but it is sufficiently marked to make the finding significant.

The reasons for this finding can again only be conjectured, since an adequate explanation would require detailed analysis beyond the scope of this paper. It may be suggested that the material-oriented industries tend to be located close to the supply of raw materials, many of which are products of agriculture and some of which are products of mining. Since there is negative association between the shares of agriculture and mining and total output (inferable from their shares in participation income), the low income states in which the shares of agriculture and mining are large would also tend to have, within whatever manufacturing industries they possess, a preponderance of the material-oriented branches. On the other hand, the fabricating branches, with a presumably higher ratio of value added to cost of materials and a greater orientation to consumer markets would be relatively more important within total manufacturing in those states in which per capita income is high and the density and potential of the domestic market great. Even primary metals, distinguishable in 1955 alone, do not show a positive association of the share in total manufacturing wages and salaries with income per capita, if one excludes the exceptional level in group II; and yet the association of the shares of the metal fabricating branches with income per capita is clearly positive.

A similar picture would probably obtain in international comparisons. In the low income countries, with the dominance of agriculture (and if mineral resources are available, also of mining) one would expect to find within manufacturing the share of raw material-oriented branches to be high. In this case the emphasis on raw material conversion rather than complex fabrication would be accentuated because the latter requires heavy investment in capital and skills that is beyond the capacity of many low income countries; and because the per capita consumer expenditures may be too low to permit sufficient demand for the durable products involved (e.g., automobiles). By contrast, in countries with high per capita income one would expect to find within total manufactures a greater share of the fabricating branches--unless the country is small and so greatly endowed with valuable mineral resources as to warrant concentration on raw material conversion and reliance on imports for the more complex fabricated products required by the high per capita income demand. These considerations have less weight in the analysis for the states within this country, where income differentials are much narrower and capital funds and skills can move more freely.

The shifts in structure of manufacturing between the material-oriented and the fabricating branches, as we move from high to low income states, may

Notes for Table 9.

Grouping of states for 1939 is based on Personal Income by States since 1929, Table 2, and for 1955 is given in App. Table 15. Underlying data are given in ibid., Tables 71 and 78.

For each group in col. 1-6 the percentage shares are based on sums of absolute totals; and hence, unlike means of shares in other tables, are weighted. The averages in col. 7-9 are derived from col. 1-6 and are unweighted.

well account for the irregularity in the positive association between per capita income and the share of manufacturing in participation income observed in Table 8, i. e., the trough in group IV or V and the rather large share in group VI. To test this effect we assumed that the distribution of wages and salaries by branches represents the distribution of total participation income originating in manufacturing and that the data on the former for 1939 are valid for 1940. We grouped all material-oriented branches together (listed in the footnote to Table 10); calculated their share in manufacturing wages and salaries; and applied this share to the share of manufacturing in total participation income, for the successive groups of states by per capita income for two years, 1940 and 1955 (Table 10).

The value of the results for 1940 is limited because we cannot separate (for 1939) the share of metal fabrication from that of primary metal conversion. Nevertheless, the ratio of material-oriented branches to total manufacturing rises significantly as we move from the high to the low income states--from 0.52 in group I to 0.80 in group VI; and the ratio of the fabricating branches correspondingly diminishes--from 0.48 to 0.20. In 1955 there is also a clear negative association between level of income and the share of material-oriented branches in total manufacturing: it rises from 0.31 in group I to 0.70 in group VI, and that of fabricating branches declines accordingly from 0.69 to 0.30. The derived share in participation income of material-oriented manufacturing alone, in contrast to the share of total manufacturing and its positive association with per capita income, reveals no clear association. In fact, the data for 1955 suggest, if anything, a negative association between per capita income and the share of material-oriented manufacturing.

By contrast, the share of fabricating manufacturing clearly shows a positive association with income per capita, dropping markedly from high levels in groups I and II to quite low levels in the other groups. True, even here the trough is reached in group V rather than group VI--a finding that may have some significance, but may also be due to the crudity of the analysis. However, the share in group VI is quite low, and the whole range is quite wide--far wider than for the share of total manufacturing, let alone that for the material-oriented branches. Thus for 1939, the range in the share of total manufacturing is from 28.5 percent in groups I and II to 10.0 percent in group V or 14.5 percent in groups V and VI--ratios of either 3 or 2 to 1; the range in the share of the fabricating branches is from 13.5 percent in groups I and II to either 1.5 percent in group V or 2.6 percent in groups V and VI--ratios of either 9 or over 5 to 1. For 1955 the relationships are similar.

This finding may have relevance to international comparisons also. Given the underlying factors suggested, differences in the share of material-oriented manufacturing associated with differences in per capita income among nations are likely to be narrower than those in the share of total manufacturing; but the association is likely to remain positive (provided the sample countries are fairly inclusive). It follows that in international comparisons the range of the share of the fabricating type of manufacturing in total income would also be wider--and much wider and more striking than the range of the share of the material-oriented branches of manufacturing.

E. Cross-Section Analysis of Shares of Subdivisions of the S Sector

The very limited range among states of the share of the S sector and the absence of a clear association with per capita income may well be due to the

Table 10.

Allocation of Shares of Total Manufacturing between Raw Material Branches and Fabricating Branches, 1940 and 1955

| | Groups of States by Total Income per Capita | | | | | |
|--|---|-----------|------------|-----------|----------|-----------|
| | I (1) | II (2) | III (3) | IV (4) | V (5) | VI (6) |
| 1940 | | | | | | |
| 1 Share of total manufacturing in participation income | 27.95 | 29.0 | 23.6 | 12.6 | 10.0 | 18.95 |
| 2 Share of raw material industries in manufacturing (Table 9, 1939) | 0.52 | 0.53 | 0.60 | 0.69 | 0.85 | 0.80 |
| 3 Share of raw materials manufacturing in participation income (1x2) | 14.5 | 15.4 | 14.2 | 8.7 | 8.5 | 15.2 |
| 4 Share of fabricating manufacturing in participation income (1-3) | 13.4 | 13.6 | 9.4 | 3.9 | 1.5 | 3.8 |
| 1955 | | | | | | |
| 5 Share of total manufacturing in participation income | 34.2 | 32.8 | 23.1 | 20.0 | 16.45 | 22.75 |
| 6 Share of raw materials industries in manufacturing (Table 9, 1955) | 0.31 | 0.43 | 0.49 | 0.53 | 0.68 | 0.70 |
| 7 Share of raw materials manufacturing in participation income (5x6) | 10.6 | 14.1 | 11.3 | 10.6 | 11.2 | 15.9 |
| 8 Share of fabricating manufacturing in participation income (5-7) | 23.6 | 18.7 | 11.8 | 9.4 | 5.2 | 6.9 |

Raw material manufactures for 1939 include: food and tobacco, textiles, lumber, paper, chemicals, petroleum, leather, stone, clay, and glass, and metals and metal products. For 1955 they include the same groups, except that primary metals (not shown separately for 1939) is substituted for metals and metal products.

heterogeneity of the sector. It includes a wide variety of activities that perform different functions and that consequently may behave quite differently, either in the dispersion of their shares among the states or in their association with per capita income. The results shown for the S sector as a whole may, therefore, be due in part to the offsetting of differences among the subdivisions; and it is all the more important to study these subdivisions separately. The data permit us to do so for 1929 and later years.

We begin with the major components: transportation and public utilities (T), trade and finance (C), business, professional, personal, and domestic services (PS), and governments (G), the sum of the last two designated other services (OS). This distribution of the S sector is similar to that followed in the international comparisons, except that here we split OS between government and private services.

The limited dispersion, the rather marked concentration of shares within a relatively narrow range, which we found in Table 4 for the share of the S sector as a whole, is by and large true also of the four components (T, C, PS, and G) and of the two major divisions (T+C and OS) (Table 11). Thus, the ratio of the average deviation from the arithmetic mean to that mean for the share of the S sector (in Table 4) varies for the four years from 0.11 to 0.09, and averages

Table 11.
Partition Values and Measures of Dispersion, Distributions of States by Shares of Major Components of the S Sector
in Participation Income, Selected Years, 1929 to 1955

| | Lowest 3 States (1) | First Quartile (2) | Median (3) | Third Quartile (4) | Highest 3 States (5) | Full Range | | Interquartile Range | | Avg. Dev. from Arith. Mean | |
|--|---------------------------|--------------------------|---------------|--------------------------|----------------------------|----------------|---------------------------|---------------------|---------------------------|-------------------------------|---------------------------------------|
| | | | | | | (5)-(1) (6) | As Ratio to (3) (7) | (4)-(2) (8) | As Ratio to (3) (9) | Abso- lute (10) | As Ratio to Arith. Mean (11) |
| | | | | | | | | | | | |
| Distribution by Share of Transportation and Public Utilities (T) | | | | | | | | | | | |
| 1 1929 | 6.4 | 8.6 | 10.15 | 12.0 | 16.1 | 9.7 | 0.96 | 3.4 | 0.33 | 1.94 | 0.19 |
| 2 1940 | 5.4 | 7.7 | 8.8 | 10.3 | 12.9 | 7.5 | 0.85 | 2.6 | 0.30 | 1.57 | 0.18 |
| 3 1950 | 5.2 | 7.5 | 8.3 | 9.25 | 11.8 | 6.6 | 0.80 | 1.75 | 0.21 | 1.27 | 0.15 |
| 4 1955 | 5.2 | 7.0 | 8.1 | 9.3 | 12.2 | 7.0 | 0.86 | 2.3 | 0.28 | 1.37 | 0.17 |
| Distribution by Share of Commerce (C) | | | | | | | | | | | |
| 5 1929 | 16.1 | 19.0 | 21.65 | 24.2 | 29.4 | 13.3 | 0.62 | 5.2 | 0.24 | 2.85 | 0.13 |
| 6 1940 | 17.2 | 20.65 | 22.6 | 25.2 | 29.8 | 12.6 | 0.56 | 4.55 | 0.20 | 2.55 | 0.11 |
| 7 1950 | 18.5 | 21.3 | 22.3 | 24.9 | 29.0 | 10.5 | 0.47 | 3.6 | 0.16 | 2.22 | 0.10 |
| 8 1955 | 18.9 | 20.9 | 22.3 | 24.95 | 29.1 | 10.2 | 0.46 | 4.05 | 0.18 | 2.36 | 0.10 |
| Distribution by Share of T+C | | | | | | | | | | | |
| 9 1929 | 24.6 | 29.2 | 31.8 | 36.3 | 39.9 | 15.3 | 0.48 | 7.1 | 0.22 | 3.63 | 0.11 |
| 10 1940 | 24.2 | 29.2 | 31.2 | 35.5 | 39.4 | 15.2 | 0.49 | 6.3 | 0.20 | 3.45 | 0.11 |
| 11 1950 | 25.2 | 28.9 | 30.9 | 33.9 | 37.9 | 12.7 | 0.41 | 5.0 | 0.16 | 2.83 | 0.09 |
| 12 1955 | 25.0 | 28.5 | 30.8 | 34.1 | 38.2 | 13.2 | 0.43 | 5.6 | 0.18 | 3.08 | 0.10 |

Distribution by Share of Private Services (PS)

13 1929 8.8 10.0 11.5 13.2 18.1

18.1

8.2

0.81

2.2

0.22

0.16

| Distribution by Share of Private Services (PS) | | | | | | | | | |
|--|------|------|-------|-------|------|------|------|------|------|
| 13 | 1929 | 8.8 | 10.0 | 11.5 | 13.2 | 18.1 | 9.3 | 0.81 | 3.2 |
| 14 | 1940 | 8.0 | 9.7 | 10.5 | 12.0 | 16.8 | 8.8 | 0.84 | 2.3 |
| 15 | 1950 | 7.4 | 8.7 | 9.8 | 11.2 | 16.5 | 9.1 | 0.93 | 2.5 |
| 16 | 1955 | 7.8 | 9.1 | 10.0 | 11.2 | 18.1 | 10.3 | 1.03 | 2.1 |
| Distribution by Share of Governments (G) | | | | | | | | | |
| 17 | 1929 | 5.6 | 6.8 | 7.5 | 8.7 | 11.8 | 6.2 | 0.83 | 1.9 |
| 18 | 1940 | 9.0 | 12.3 | 14.6 | 16.0 | 21.4 | 12.4 | 0.85 | 3.7 |
| 19 | 1950 | 7.0 | 8.8 | 11.3 | 14.4 | 22.2 | 15.2 | 1.35 | 5.6 |
| 20 | 1955 | 8.0 | 10.3 | 14.15 | 17.4 | 26.5 | 18.5 | 1.31 | 7.1 |
| Distribution by Share of Private Services and Governments (OS) | | | | | | | | | |
| 21 | 1929 | 15.1 | 17.4 | 19.1 | 22.1 | 28.6 | 13.5 | 0.71 | 4.7 |
| 22 | 1940 | 19.2 | 22.9 | 24.7 | 27.5 | 32.7 | 13.5 | 0.55 | 4.6 |
| 23 | 1950 | 15.1 | 18.45 | 21.6 | 24.7 | 34.7 | 19.6 | 0.91 | 6.25 |
| 24 | 1955 | 16.1 | 20.5 | 24.3 | 27.6 | 39.4 | 23.3 | 0.96 | 7.1 |
| | | | | | | | | 0.28 | 1.95 |
| | | | | | | | | 0.22 | 1.61 |
| | | | | | | | | 0.26 | 1.63 |
| | | | | | | | | 0.21 | 1.54 |
| | | | | | | | | 0.17 | 0.16 |
| | | | | | | | | 0.16 | 0.15 |
| | | | | | | | | 0.27 | 0.16 |
| | | | | | | | | 0.50 | 0.27 |
| | | | | | | | | 0.50 | 0.26 |
| | | | | | | | | 0.25 | 0.14 |
| | | | | | | | | 0.19 | 0.11 |
| | | | | | | | | 0.29 | 0.19 |
| | | | | | | | | 0.29 | 0.18 |

For sources see notes to Table 4.

Arithmetic means underlying col. 10 and 11 are from Table 12, col. 7.

0.10. For the share of transportation and public utilities, it averages 0.17; of commerce--0.11; of T+C--0.10; of private services--0.15; of government--0.21; of OS--0.15. While some of these measures of relative variability are larger than that for the share of the S sector as a whole, they are still quite small--significantly smaller than that for the share of either the A or the M sector in Table 4 and smaller even than that for the share of construction in Table 8. Thus far, the reduction in heterogeneity does not change the findings already established.

These results are quite similar to those found in the international comparison, where by and large the distinction of the major components within the S sector did not reveal wider dispersion for any of the components except transportation and public utilities. In Table 5 of the earlier paper, the ratio of the interquartile range to the median is 0.81 for the share of T, compared with 0.34 for the share of the S sector and 0.45 for the shares of both C and OS. In Table 11 the average for this measure for four years is 0.28 for T, 0.20 for C, 0.25 for OS, and 0.19 for the share of the S sector as a whole (the last from Table 4).

The reasons for the different behavior of the T share in international and interstate comparisons can be suggested. A large part of this group of activities is founded on a countrywide network, and to that extent its contribution to the participation income of any one state is a function of activities not only within that state but also elsewhere in the country. There is consequently a common element in the weight of these activities in all states, which reduces interstate differences--and makes for a negative association with income. Another part of the activities, however, is strictly local (e.g., telephone service or local transportation); but the income elasticity of demand for such services may be high, even in the United States with its generally high income level, particularly if we consider the importance in this connection of differences in urbanization. The proportion of income devoted to these services would therefore be constant or show limited dispersion; but the resulting association with income would be positive. The combination of these two opposite effects should result in a narrow dispersion in the share of the transportation and communication component.

The first factor, a common network, is far less important in international comparisons. Such links as there are among the national transportation and communication networks are often of negligible weight compared with the internal lines of transport and communication. There is consequently no weighty common element in the share of the T component in all countries, that would tend to produce a negative association between it and per capita income. On the other hand, the positive association would be much stronger, since international levels of income have a much wider range, and the cross-section income elasticity of demand for these services should be much greater. Furthermore, since these industries have high capital-output ratios, demanding a large fixed capital investment, it is not surprising that the share of the transportation and communication component in international comparison shows wide dispersion. Indeed, the dispersion would probably be even wider if the distribution of income were in comparable prices: the prices of transportation and communication services in the less developed countries are notoriously high, far higher than those in the high income countries, and the already low share of these services in unadjusted prices (which we use throughout) would be much lower if calculated for totals in comparable prices.

The share of transportation and communication shows some slight positive association with per capita income in 1929 and 1940, somewhat less in

Table
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1 19
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Table 12.
Arithmetic Means of Percentage Shares of Major Components of the S Sector in
Participation Income, Groups of States by Total Income per Capita, Selected
Years, 1929 to 1955

| | Groups of States by Total Income per Capita | | | | | | Arith. Mean I- VI (Un- weighted) | Wider Groups | | |
|---|---|-------|-------|-------|-------|-------|---|--------------|--------|-------|
| | I | II | III | IV | V | VI | VI (Un- weighted) | I+II | III+IV | V+VI |
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) |
| Share of Transportation and Public Utilities (T) | | | | | | | | | | |
| 1 1929 | 10.35 | 9.65 | 10.75 | 11.6 | 11.2 | 8.8 | 10.4 | 10.0 | 11.2 | 10.0 |
| 2 1940 | 8.85 | 9.2 | 9.0 | 9.4 | 9.3 | 7.6 | 8.89 | 9.0 | 9.2 | 8.45 |
| 3 1950 | 8.1 | 8.9 | 8.7 | 8.8 | 8.1 | 7.2 | 8.30 | 8.5 | 8.75 | 7.65 |
| 4 1955 | 7.35 | 7.95 | 9.4 | 8.9 | 9.0 | 6.7 | 8.22 | 7.65 | 9.15 | 7.85 |
| Share of Commerce (C) | | | | | | | | | | |
| 5 1929 | 24.4 | 22.2 | 22.15 | 22.4 | 20.6 | 19.8 | 21.9 | 23.3 | 22.3 | 20.2 |
| 6 1940 | 25.5 | 23.0 | 24.2 | 23.6 | 22.0 | 19.7 | 23.0 | 24.25 | 23.9 | 20.85 |
| 7 1950 | 23.7 | 22.8 | 24.1 | 23.9 | 21.9 | 21.6 | 23.0 | 23.25 | 24.0 | 21.75 |
| 8 1955 | 22.7 | 21.7 | 24.8 | 24.3 | 22.75 | 22.1 | 23.1 | 22.2 | 24.55 | 22.4 |
| Share of T+C | | | | | | | | | | |
| 9 1929 | 34.75 | 31.85 | 32.9 | 34.0 | 31.8 | 28.6 | 32.3 | 33.3 | 33.45 | 30.2 |
| 10 1940 | 34.35 | 32.2 | 33.2 | 33.0 | 31.3 | 27.3 | 31.9 | 33.3 | 33.1 | 29.3 |
| 11 1950 | 31.8 | 31.7 | 32.8 | 32.7 | 30.0 | 28.8 | 31.3 | 31.75 | 32.75 | 29.4 |
| 12 1955 | 30.05 | 29.65 | 34.2 | 33.2 | 31.75 | 28.8 | 31.3 | 29.85 | 33.7 | 30.3 |
| Share of Private Services (PS) | | | | | | | | | | |
| 13 1929 | 14.4 | 12.3 | 11.2 | 11.6 | 11.0 | 11.5 | 12.0 | 13.35 | 11.4 | 11.25 |
| 14 1940 | 13.3 | 10.4 | 10.6 | 11.4 | 9.8 | 10.1 | 10.9 | 11.85 | 11.0 | 9.95 |
| 15 1950 | 12.3 | 9.8 | 9.3 | 10.3 | 9.9 | 9.6 | 10.2 | 11.05 | 9.8 | 9.75 |
| 16 1955 | 12.9 | 9.85 | 11.0 | 10.1 | 10.0 | 9.25 | 10.5 | 11.4 | 10.55 | 9.6 |
| Share of Government (G) | | | | | | | | | | |
| 17 1929 | 7.3 | 8.3 | 7.5 | 8.6 | 8.3 | 7.1 | 7.85 | 7.8 | 8.05 | 7.7 |
| 18 1940 | 11.8 | 13.5 | 13.7 | 15.95 | 15.7 | 15.5 | 14.4 | 12.65 | 14.8 | 15.6 |
| 19 1950 | 9.9 | 13.1 | 9.1 | 13.1 | 14.1 | 12.8 | 12.0 | 11.5 | 11.1 | 13.45 |
| 20 1955 | 11.3 | 14.05 | 13.55 | 15.15 | 17.3 | 15.6 | 14.5 | 12.7 | 14.35 | 16.45 |
| Share of OS (PS+G) | | | | | | | | | | |
| 21 1929 | 21.7 | 20.6 | 18.7 | 20.2 | 19.3 | 18.6 | 19.85 | 21.15 | 19.45 | 18.95 |
| 22 1940 | 25.1 | 23.9 | 24.3 | 27.35 | 25.5 | 25.6 | 25.3 | 24.5 | 25.8 | 25.55 |
| 23 1950 | 22.2 | 22.9 | 18.4 | 23.4 | 24.0 | 22.4 | 22.2 | 22.55 | 20.9 | 23.2 |
| 24 1955 | 24.2 | 23.9 | 24.55 | 25.25 | 27.3 | 24.85 | 25.0 | 24.05 | 24.9 | 26.1 |

For states included in specific groups see App. Table 15.

For sources see notes to Table 4.

1950, and practically none in 1955 (Table 12). In all the years the decline in the share with the shift down the scale of income is, however, quite limited and far from consistent. In all four years the highest share is not in group I but in some intermediate group, and while the lowest share is in group VI, this is the only unequivocal evidence of positive association. This finding is in contrast with that in

the international comparisons (see Table 6 of the earlier paper): there the share of the T division declined from 9.7 percent in groups I and II to 3.3 in group VII, and 4.4 in group VI--a ratio of close to 3 to 1 or over 2 to 1.

There is a weak positive association between the share of commerce (trade and finance) and per capita income, at least in 1929 and 1940; but it is less evident in 1950 and vanishes in 1955. Here again the range is quite narrow and the decline of the share from the high income states to the low--even when observed--is quite irregular. The general conclusion is that of positive association at least before 1955, but of limited impact and regularity, and it is not very different from that for international comparisons. The combination of T and C naturally only reproduces the limited positive correlation with per capita income, found for T and C separately.

The share of the private services component (PS) shows a fairly clear-cut positive association with per capita income. In each of the four years the share for the combined groups in columns 8-10 shows a steady downward movement. True, the range is not wide--certainly much narrower than that for the A sector, the M sector, and the components of the latter. But in this case at least, unlike those of the S sector as a whole, and the T and C components, the positive association is clear and unmistakable.

A distinct change in the share of governments (G) appears to have occurred between 1929 and 1940. In 1929 no clear association between the share and per capita income can be seen. Beginning with 1940, however, and for the two later years negative association prevails: while the movement is irregular, the share in the low income states is, in all three years, significantly higher than that in the high income states. The explanation of this shift and of this negative association will emerge when we distinguish between Federal and state and local government. For the present we should note that beginning with 1940, the association between the share of government and per capita income runs counter to that between the shares of all other components of the S sector (and of the S sector as a whole) and income.

As a result of the combination of positive association for the share of PS and, beginning with 1940, negative association for the share of G, the share of OS shows a changing association with per capita income: for 1929 it is positive, for the later years it tends to be negative. The range of the share is quite limited in all years.

It is already evident from the analysis of the major components that despite the weak positive association between the share of the S sector as a whole and per capita income, some groups of activities distinguished within the S sector reveal more marked and more regular associations, and not all of them positive. Examination of the more detailed subdivisions within the major components will further amplify this finding.

Within the C component, we can distinguish trade (retail and wholesale) and finance (banking, brokerage, insurance, and real estate). Within the PS component we can distinguish hotels and boarding houses; recreation and amusement (these two subdivisions were combined, to avoid too erratic behavior of the shares); personal services and private household; business and repair services; and professional, social, and related services. Finally, within the G component we can distinguish state and local government, and Federal government. The average shares of some of the subdivisions are fairly small, making for a somewhat

erratic movement of the percentages; and this despite the fact that the classification is still too broad to yield truly homogeneous classes.

For three subdivisions--trade, professional and related services, and state and local government--the spread of the shares is not much wider than for the major components in Table 11, or even than that for the S sector as a whole in Table 4 (Table 13). If we take the ratio of the average deviation to the unweighted mean, the averages for these three subdivisions for the four years are 0.10, 0.13, and 0.12 respectively, compared with the similar average for the S sector of 0.11. Although these three subdivisions are geared to local conditions, they are fairly responsive, in a roughly proportional way, to the income levels in the various states. The relatively narrow dispersion in the share of the professional and related services reflects the heterogeneity of the group, which includes, in addition to highly specialized services found only in the high income states, a large proportion of essential services required in any area.

For the other subdivisions shown in Table 13, the dispersion of shares in participation income is appreciably wider. The average for four years of the ratio of the average deviation to the mean is 0.24 for the share of finance; 0.42 for the share of hotels and amusements; 0.25 for the share of personal and domestic service; 0.35 for the share of business and repair service; and 0.41 for the share of Federal government. We would expect the demand for the services of finance, hotels and amusements, possibly personal and domestic service, and business and repair services to be proportionately higher in the high income states; and for this reason alone produce a wider dispersion. Since income originating in the Federal government bears no systematic relation to total participation income received in any one state (disregarding high shares in states contiguous to Washington, D.C., such as Virginia and Maryland), dispersion in the share of that component can be quite wide. Whatever the reason, the fact is that the average measures of relative dispersion in the shares of hotels and amusements, of business and repair service, and of Federal government are even wider than that for the share of the M sector in Table 4 (which for the four years is 0.30); and those for finance and personal and domestic service are not much narrower.

Of more interest is the character of the association between these shares and per capita income (Table 14). The rather intriguing conclusions that the table suggests may be listed seriatim.

First, we find no clear association between the share of trade proper in participation income and per capita income. The share rises as we move from groups I and II to groups III and IV, and then declines. In the first three years, 1929, 1940, and 1950, the share is lowest in group VI, but the difference in 1950 between it and group V is slight; and by 1955 no semblance of positive correlation remains. It is the share of finance that shows a distinct positive association with per capita income. It is high in the high income states and declines fairly sharply as we move down to the low income states. Even in 1955 the range is from 4.3 percent in group I to 3.1 percent in group VI. Apparently, the extent of activity in such fields as banking, insurance, and real estate is more than proportionately higher in the high income states--a finding that is not surprising. It follows that whatever mild positive association is found between the share of C and per capita income is thus due largely to finance--not to trade, the quantitatively larger subdivision.

Second, we find a fairly clear, positive association between the shares of three subdivisions of private services and per capita income: hotels and amusements, business and repair services, and professional and related services.

Table 13.
Partition Values and Measures of Dispersion, Distributions of States by Shares of Subdivisions of Major Components
of the S Sector in Participation Income, Selected Years, 1929 to 1955

| | Lowest 3 States (1) | First Quartile (2) | Median (3) | Third Quartile (4) | Highest 3 States (5) | Full Range | | Interquartile Range | | Avg. Dev. from Arith. Mean | |
|---|---------------------------|--------------------------|---------------|--------------------------|----------------------------|----------------|---------------------------|---------------------|---------------------------|-------------------------------|---------------------------------------|
| | | | | | | (5)-(1) (6) | As Ratio to (3) (7) | (4)-(2) (8) | As Ratio to (3) (9) | Abso- lute (10) | As Ratio to Arith. Mean (11) |
| | | | | | | | | | | | |
| SUBDIVISIONS OF C | | | | | | | | | | | |
| Distribution by Share of Trade | | | | | | | | | | | |
| 1 1929 | 13.0 | 15.55 | 17.5 | 20.1 | 22.0 | 9.0 | 0.51 | 4.55 | 0.26 | 2.08 | 0.12 |
| 2 1940 | 14.6 | 17.8 | 19.25 | 21.5 | 24.1 | 9.5 | 0.50 | 3.7 | 0.19 | 2.02 | 0.10 |
| 3 1950 | 16.1 | 18.2 | 19.3 | 21.1 | 24.0 | 7.9 | 0.41 | 2.9 | 0.15 | 1.76 | 0.09 |
| 4 1955 | 15.8 | 17.5 | 19.1 | 21.2 | 24.2 | 8.4 | 0.44 | 3.7 | 0.19 | 1.98 | 0.10 |
| Distribution by Share of Finance | | | | | | | | | | | |
| 5 1929 | 2.0 | 3.15 | 4.1 | 5.0 | 8.3 | 6.3 | 1.54 | 1.85 | 0.45 | 1.22 | 0.28 |
| 6 1940 | 1.4 | 2.65 | 3.35 | 4.3 | 6.5 | 5.1 | 1.52 | 1.65 | 0.49 | 0.98 | 0.28 |
| 7 1950 | 1.9 | 2.4 | 3.1 | 3.6 | 5.5 | 3.6 | 1.16 | 1.2 | 0.39 | 0.71 | 0.22 |
| 8 1955 | 2.5 | 3.0 | 3.55 | 4.15 | 5.9 | 3.4 | 0.96 | 1.15 | 0.32 | 0.67 | 0.18 |
| SUBDIVISIONS OF PS | | | | | | | | | | | |
| Distribution by Share of Hotels, etc., and Amusements | | | | | | | | | | | |
| 9 1929 | 0.8 | 1.3 | 1.6 | 2.1 | 5.1 | 4.3 | 2.69 | 0.8 | 0.50 | 0.67 | 0.36 |
| 10 1940 | 0.9 | 1.1 | 1.4 | 1.85 | 4.6 | 3.7 | 2.64 | 0.75 | 0.54 | 0.58 | 0.34 |
| 11 1950 | 0.8 | 0.9 | 1.1 | 1.4 | 6.0 | 5.2 | 4.73 | 0.5 | 0.45 | 0.67 | 0.46 |
| 12 1955 | 0.6 | 0.9 | 1.0 | 1.3 | 7.3 | 6.7 | 6.70 | 0.4 | 0.40 | 0.79 | 0.53 |

Distribution by Share of Personal Services and Private Households

| | | | | | | | | | | | |
|---------|-----|-----|-----|------|-----|-----|------|-----|------|------|------|
| 13 1929 | 2.6 | 3.2 | 3.9 | 5.3 | 7.8 | 5.2 | 1.33 | 2.1 | 0.54 | 1.21 | 0.28 |
| 14 1940 | 1.9 | 2.7 | 3.3 | 4.15 | 7.8 | 5.9 | 1.33 | 2.1 | 0.54 | 1.21 | 0.28 |

| Distribution by Share of Personal Services and Private Households | | | | | | | | | |
|---|-----|-----|-----|------|-----|-----|------|------|------|
| 13 1929 | 2.6 | 3.2 | 3.9 | 5.3 | 7.8 | 5.2 | 1.33 | 2.1 | 0.54 |
| 14 1940 | 1.9 | 2.7 | 3.3 | 4.15 | 5.9 | 4.0 | 1.21 | 1.45 | 0.44 |
| 15 1950 | 1.6 | 2.1 | 2.8 | 3.4 | 4.8 | 3.2 | 1.14 | 1.3 | 0.46 |
| 16 1955 | 1.7 | 2.0 | 2.5 | 3.1 | 3.9 | 2.2 | 0.88 | 1.1 | 0.44 |

Distribution by Share of Business and Repair Services

| | | | | | | | | | | | |
|---------|-----|------|------|------|-----|-----|------|------|------|------|------|
| 17 1929 | 0.2 | 0.75 | 0.9 | 1.25 | 1.9 | 1.7 | 1.89 | 0.5 | 0.56 | 0.32 | 0.33 |
| 18 1940 | 0.3 | 0.7 | 0.95 | 1.3 | 2.3 | 2.0 | 2.10 | 0.6 | 0.63 | 0.35 | 0.34 |
| 19 1950 | 0.4 | 0.7 | 1.0 | 1.25 | 2.9 | 2.5 | 2.50 | 0.55 | 0.55 | 0.41 | 0.37 |
| 20 1955 | 0.4 | 0.8 | 1.15 | 1.5 | 2.8 | 2.4 | 2.09 | 0.7 | 0.61 | 0.45 | 0.36 |

Distribution by Share of Professional, Social, and Related Services

| | | | | | | | | | | | |
|---------|-----|-----|-----|-----|-----|-----|------|-----|------|------|------|
| 21 1929 | 3.4 | 4.2 | 4.7 | 5.2 | 6.8 | 3.4 | 0.72 | 1.0 | 0.21 | 0.64 | 0.13 |
| 22 1940 | 3.3 | 4.1 | 4.8 | 5.4 | 6.5 | 3.2 | 0.67 | 1.3 | 0.27 | 0.67 | 0.14 |
| 23 1950 | 3.5 | 4.2 | 4.7 | 5.3 | 6.4 | 2.9 | 0.62 | 1.1 | 0.23 | 0.63 | 0.13 |
| 24 1955 | 3.8 | 4.5 | 5.2 | 5.7 | 7.0 | 3.2 | 0.62 | 1.2 | 0.23 | 0.69 | 0.13 |

SUBDIVISIONS OF G

Distribution by Share of State and Local Government

| | | | | | | | | | | | |
|---------|-----|------|------|-----|-----|-----|------|------|------|------|------|
| 25 1929 | 3.8 | 4.8 | 5.2 | 5.9 | 6.9 | 3.1 | 0.60 | 1.1 | 0.21 | 0.63 | 0.12 |
| 26 1940 | 5.3 | 6.15 | 6.6 | 7.7 | 8.2 | 2.9 | 0.44 | 1.55 | 0.23 | 0.81 | 0.12 |
| 27 1950 | 4.4 | 4.95 | 5.7 | 6.3 | 7.2 | 2.8 | 0.49 | 1.35 | 0.24 | 0.67 | 0.12 |
| 28 1955 | 4.9 | 5.6 | 6.55 | 7.3 | 8.2 | 3.3 | 0.50 | 1.7 | 0.26 | 0.88 | 0.14 |

Distribution by Share of Federal Government

| | | | | | | | | | | | |
|---------|-----|------|------|------|------|------|------|------|------|------|------|
| 29 1929 | 1.0 | 1.5 | 2.2 | 3.1 | 6.3 | 5.3 | 2.41 | 1.6 | 0.73 | 1.07 | 0.42 |
| 30 1940 | 3.3 | 5.4 | 7.65 | 9.1 | 15.1 | 11.8 | 1.54 | 3.7 | 0.48 | 2.27 | 0.30 |
| 31 1950 | 1.9 | 3.55 | 5.15 | 8.7 | 16.6 | 14.7 | 2.85 | 5.15 | 1.00 | 3.09 | 0.49 |
| 32 1955 | 2.3 | 4.35 | 7.6 | 10.7 | 20.1 | 17.8 | 2.34 | 6.35 | 0.84 | 3.60 | 0.45 |

For sources see notes to Table 4 except for lines 9-24 which are based on unpublished data kindly supplied by Charles F. Schwartz of the Office of Business Economics.

Arithmetic means underlying col. 10 and 11 are from Table 14, col. 7.

Table 14.

Arithmetic Means of Percentage Shares of Subdivisions of Major Components of the S Sector in Participation Income, Groups of States by Total Income per Capita, Selected Years, 1929 to 1955

| | Groups of States by Total Income per Capita | | | | | | Arith. | Wider Groups | | |
|--|---|------|------|------|-------|------|-------------------------|--------------|--------|------|
| | I | II | III | IV | V | VI | Mean I-VI (Un-weighted) | I+II | III+IV | V+VI |
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) |
| SUBDIVISIONS OF C | | | | | | | | | | |
| Share of Trade | | | | | | | | | | |
| 1 1929 | 17.8 | 17.6 | 18.1 | 18.3 | 17.0 | 16.6 | 17.6 | 17.7 | 18.2 | 16.8 |
| 2 1940 | 20.4 | 19.4 | 20.7 | 20.2 | 19.2 | 17.0 | 19.5 | 19.9 | 20.45 | 18.1 |
| 3 1950 | 19.6 | 19.5 | 20.9 | 20.8 | 19.15 | 18.9 | 19.8 | 19.55 | 20.85 | 19.0 |
| 4 1955 | 18.4 | 18.0 | 20.8 | 20.7 | 19.55 | 19.0 | 19.4 | 18.2 | 20.75 | 19.3 |
| Share of Finance | | | | | | | | | | |
| 5 1929 | 6.6 | 4.6 | 4.05 | 4.1 | 3.6 | 3.2 | 4.36 | 5.6 | 4.1 | 3.4 |
| 6 1940 | 5.1 | 3.6 | 3.5 | 3.4 | 2.8 | 2.7 | 3.52 | 4.35 | 3.45 | 2.75 |
| 7 1950 | 4.1 | 3.3 | 3.2 | 3.1 | 2.75 | 2.7 | 3.19 | 3.7 | 3.15 | 2.7 |
| 8 1955 | 4.3 | 3.7 | 4.0 | 3.6 | 3.2 | 3.1 | 3.65 | 4.0 | 3.8 | 3.15 |
| SUBDIVISIONS OF PS | | | | | | | | | | |
| Share of Hotels and Amusements | | | | | | | | | | |
| 9 1929 | 2.8 | 1.9 | 1.9 | 1.9 | 1.6 | 1.2 | 1.88 | 2.35 | 1.9 | 1.4 |
| 10 1940 | 2.5 | 1.5 | 1.8 | 2.0 | 1.3 | 1.1 | 1.70 | 2.0 | 1.9 | 1.2 |
| 11 1950 | 2.8 | 1.3 | 1.1 | 1.5 | 1.2 | 0.9 | 1.47 | 2.05 | 1.3 | 1.05 |
| 12 1955 | 3.2 | 1.0 | 1.6 | 1.2 | 1.1 | 0.8 | 1.48 | 2.1 | 1.4 | 0.95 |
| Share of Personal Service and Private Households | | | | | | | | | | |
| 13 1929 | 4.8 | 4.3 | 3.6 | 3.7 | 4.2 | 5.7 | 4.38 | 4.55 | 3.65 | 4.95 |
| 14 1940 | 3.8 | 3.2 | 3.0 | 3.4 | 3.1 | 4.5 | 3.50 | 3.5 | 3.2 | 3.8 |
| 15 1950 | 2.9 | 2.5 | 2.3 | 2.8 | 2.8 | 3.8 | 2.85 | 2.7 | 2.55 | 3.3 |
| 16 1955 | 2.6 | 2.35 | 2.3 | 2.4 | 2.6 | 3.1 | 2.56 | 2.5 | 2.35 | 2.85 |
| Share of Business and Repair Service | | | | | | | | | | |
| 17 1929 | 1.3 | 1.1 | 0.9 | 1.0 | 0.9 | 0.6 | 0.96 | 1.2 | 0.95 | 0.75 |
| 18 1940 | 1.6 | 1.1 | 0.9 | 1.0 | 1.0 | 0.5 | 1.02 | 1.35 | 0.95 | 0.75 |
| 19 1950 | 1.45 | 1.2 | 1.0 | 1.2 | 1.1 | 0.7 | 1.11 | 1.3 | 1.1 | 0.9 |
| 20 1955 | 1.9 | 1.2 | 1.4 | 1.0 | 1.2 | 0.8 | 1.25 | 1.55 | 1.2 | 1.0 |
| Share of Professional, Social, and Related Service | | | | | | | | | | |
| 21 1929 | 5.4 | 5.0 | 4.8 | 4.9 | 4.4 | 4.0 | 4.75 | 5.2 | 4.85 | 4.2 |
| 22 1940 | 5.4 | 4.8 | 5.0 | 4.9 | 4.5 | 4.1 | 4.78 | 5.1 | 4.95 | 4.3 |
| 23 1950 | 5.05 | 4.9 | 5.0 | 4.8 | 4.8 | 4.1 | 4.78 | 5.0 | 4.9 | 4.45 |
| 24 1955 | 5.2 | 5.3 | 5.7 | 5.5 | 5.1 | 4.5 | 5.22 | 5.25 | 5.6 | 4.8 |

(Continued on next page)

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) |
|--|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|
|--|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|

SUBDIVISIONS OF G

Share of State and Local Government

| | | | | | | | | | | |
|---------|-----|-----|------|-----|------|------|------|------|-----|------|
| 25 1929 | 5.5 | 5.6 | 5.35 | 5.6 | 5.2 | 4.7 | 5.32 | 5.55 | 5.5 | 4.95 |
| 26 1940 | 6.8 | 6.5 | 7.3 | 7.1 | 7.25 | 6.0 | 6.83 | 6.65 | 7.2 | 6.6 |
| 27 1950 | 5.6 | 5.5 | 5.4 | 6.4 | 6.0 | 5.35 | 5.71 | 5.55 | 5.9 | 5.7 |
| 28 1955 | 6.1 | 6.0 | 6.9 | 6.9 | 6.7 | 6.3 | 6.48 | 6.05 | 6.9 | 6.5 |

Share of Federal Government

| | | | | | | | | | | |
|---------|-----|------|------|------|------|-----|------|------|------|-----|
| 29 1929 | 1.8 | 2.7 | 2.15 | 3.0 | 3.15 | 2.4 | 2.53 | 2.25 | 2.6 | 2.8 |
| 30 1940 | 5.0 | 7.0 | 6.4 | 8.9 | 8.5 | 9.5 | 7.55 | 6.0 | 7.65 | 9.0 |
| 31 1950 | 4.3 | 7.6 | 3.7 | 6.75 | 8.1 | 7.5 | 6.32 | 5.95 | 5.2 | 7.8 |
| 32 1955 | 5.1 | 8.05 | 6.7 | 8.2 | 10.5 | 9.3 | 7.98 | 6.6 | 7.45 | 9.9 |

For states included in specific groups see App. Table 15.

For sources see notes to Tables 4 and 13.

The shares of all three are distinctly higher in the high income states and decline substantially as we move down the per capita income scale. The relative range of these shares is widest for hotels and amusement services, somewhat narrower for business and repair services, and much narrower for professional and related services.

The association between the share of personal and domestic service and per capita income is quite different. The share is relatively high in groups I and II, lower in groups III and IV, and much higher in groups V and VI, which suggests, if anything, a negative association. Apparently, in both the high and low income states the demand for personal and domestic services is large enough proportionately to lead to relatively high shares. In the latter, particularly in the South, this may be because the supply of domestic service is most abundant and, because, despite a lower average per capita income, there may be, with wider inequality in income size distribution, a proportionately greater demand for such services. As a result, it is in the middle income states, which are not characterized by high per capita incomes and by wider inequality in distribution of income on the demand side or by a relatively larger availability of such services on the supply side, that the share of personal and domestic service in total participation income is lowest.

It follows that the positive association shown in Table 12 between the share of the PS component as a whole and per capita income is due to the behavior of the shares of three subdivisions--hotels and amusements, business and repair services, and professional and related services. It prevails despite the semblance of negative association between the share of personal and domestic services and per capita income.

Third, the associations between the shares of state and local government and of Federal government and per capita income are quite different. For state and local government we find a slight trace of positive association in 1929, but in the other years no clear association exists; the share rises somewhat from groups I and II to groups III and IV, and then declines again--with the level for groups V and VI not much different from that for groups I and II.

By contrast, there is a distinct negative association between the share of Federal government and per capita income--even in 1929, and still more marked

in other years (except for the erratic figure for group III in 1950). It follows that the finding for the share of the G component in Table 12 is due to the rise in weight of the Federal government share in 1940 and the negative association between it and per capita income.

The lack of association between the share of state and local government and per capita income could perhaps have been expected: it means that the participation income originating in this subdivision is roughly proportional to total participation income in the state. It is conceivable that the higher income states with more and larger urban agglomerates would show a larger share of local government (which dominates the combined total of state and local). On the other hand, it may well be that in the less densely settled and lower income states there are offsetting factors in that a minimum requirement for state and local government services means a larger proportion in total income.

The negative association between the share of Federal government and per capita income is a more intriguing finding, and any attempt to explain it can only be conjectural. It is definitely not accounted for by the high shares in states contiguous to Washington, D.C.: one of them, Maryland, is in group II, which would make for positive association; and besides, the movement of the share is too systematic to be explained by the evidence for two or three states. The explanation lies, rather, in a complex of factors similar to that suggested in connection with the share of the transportation component. The Federal government represents a countrywide network, whose employees are paid at standard rates regardless of location and of per capita income of the state in which they reside. Even if Federal government employment, in terms of numbers, were strictly proportional to the population of the states, negative association would result because the ratio of per capita Federal compensation to total participation income would be lower in groups I and II than, say, in groups V and VI. Moreover, there may be a warranted deliberate policy in placing some Federal government activities (e.g., location of troops, research installations, power stations, etc.) in the more sparsely populated areas which may well be in the lower income states. (Military pay is included here and allocated to the state in which the members of the military forces are stationed.)

In applying these findings to the international comparison--for which we had no data--we can again only advance plausible suggestions. It is likely that the share of trade in participation or total income would show a more distinct positive correlation with per capita income among nations than was shown for the forty-eight states in Table 14. It is likely that, as in the interstate comparisons, the association between the share of finance and per capita income would be positive--although it might be less marked because of the much higher prices of financial services in the less developed countries. It is likely that, as in the interstate comparisons, the association between the shares of hotels and amusement services, business and repair services, and professional and related services, on the one hand, and per capita income on the other, would be positive. It is likely that the association between the share of personal and domestic services and per capita income would also be U-shaped, relatively high in both the very high income and the very low income nations, and low in the intermediate range. Finally, little can be inferred from the interstate comparisons as to the association between the share of government and per capita income in international comparisons: off hand, there is no ground for assuming the negative correlation shown by the share of the Federal government, and it may well be that for a large sample of nations the association would be positive. However, according to Table 6 of the earlier paper, there is no clear association among nations between the share of

the OS component and per capita income. If this is true, and if the association between the share of private services (PS) and per capita income among nations is positive, that for the share of government (the residual component of OS) should be negative.¹¹

F. Trends over Time in the Shares of the Three Major Sectors

Before we turn to direct measures of trends over time, we summarize the cross-section associations already established and consider their bearing upon long-term trends.

Summary of Cross-Section Associations

| <u>Share of:</u> | <u>Association with Per Capita Income:</u> |
|--|---|
| A Sector | negative and pronounced |
| M Sector | positive and pronounced |
| 1. Mining | negative, clear, but peak reached in group V |
| 2. Manufacturing | positive, wide range, but trough reached in group IV or V |
| 3. Construction | positive, but narrow range in high income years |
| S Sector | positive, but weak; vanishes in 1955 |
| 1. Transportation and public utilities | positive, but weak; vanishes in 1955 |
| 2. Commerce | positive, but weak; vanishes in 1955 |
| i. Trade | almost none; some traces of positive |
| ii. Finance | positive, quite pronounced |
| 3. T+C | positive, but weak; vanishes in 1955 |

11. This inference is not supported by some recent attempts at cross-section comparisons of government expenditures (or revenues) and national product (see Allison M. Martin and W. Arthur Lewis, "Patterns of Public Revenue and Expenditure", The Manchester School of Economic and Social Studies, September 1956, pp. 203-244, and Harry T. Oshima, "Share of Government in Gross National Product for Various Countries", The American Economic Review, June 1957, pp. 381-390). If from the Martin-Lewis evidence we take the data for independent nations alone, the share of either current or capital expenditures in gross national product is fairly low for India, Ceylon, and Colombia, compared with the much higher ratios for the countries with the highest per capita income such as the U.S.A., Sweden, New Zealand, and the U.K. (see Tables I and III, pp. 205 and 213). Likewise, according to Oshima's data the proportion of government receipts to gross domestic product is high for the advanced, high income countries and low for the low income, underdeveloped countries (see Tables I and II, pp. 382-383). True, the ratios relate either total government expenditures or receipts to gross national product rather than participation income originating in government to total participation income. But the evidence, as far as it goes, suggests a positive correlation in international comparisons between the share of government and per capita income--and not the negative association indicated in the interstate comparison in the text.

Summary (continued)

| <u>Share of:</u> | <u>Association with Per Capita Income:</u> |
|------------------------------|--|
| 4. Private services (PS) | positive, consistent, but narrow range |
| i. Hotels and amusements | positive and pronounced |
| ii. Personal and domestic | U-shaped; high in groups I, II, and VI; on the whole negative |
| iii. Business and repair | positive and pronounced |
| iv. Professional and related | positive, consistent, but limited range |
| 5. Governments (G) | none in 1929; negative in 1940 and later |
| i. State and local | no association; trace of positive in 1929 |
| ii. Federal | negative |
| 6. OS (PS+G) | positive in 1929; no significant association in 1940 and later years |

The associations just summarized suggest what we should find in direct observation of long-term changes--and in two ways. First, if we find a distinct correlation in cross-section analysis, we should expect one also in the long-term changes; e.g., since the share of the A sector in income increases as we shift from the high to the low income states, and since the range of the shares is wide, we should expect that, as average per capita income of all states rises over time, the average (unweighted share of the A sector in the forty-eight states) should diminish fairly appreciably. Second, if the long-term trend in the average share of a given sector for all states behaves in accordance with the cross-section association, we should expect that in those states with the largest growth in per capita income, the long-term change in the sector share should be at a more rapid rate than in the average for all states. Conversely, for states in which per capita income grows less than the average, the change in the sector share should be at a lower rate than in the average for all states. Such positive association between the changes in the shares of a given sector and the differences in rate of growth of income per capita was found in international comparisons (see Table 24 of the earlier paper, particularly the correlation between the proportional decline in the share of the A sector and the rate of growth of per capita income).

It may happen, however, that the movement over time in the average share for all states does not accord with the movement suggested by cross-section analysis but is rather in the opposite direction. This would imply that other factors, not revealed in cross-section analysis, are affecting the movement of the sector shares over time. Would we in this case expect that in those states in which per capita income grew more rapidly than the countrywide, the sector shares would change more than the all-state average, and that in the states in which per capita income grew less rapidly, the sector shares would change less than the all-state average? The answer would depend upon the relative weight of the factors which produced a movement over time different from the one suggested by the cross-section analysis. But we would at least expect the association between the rate of growth in per capita income among the states and the changes in sector shares to be less clear-cut and positive than when the long-term trend in the average share for all states is in accordance with the association suggested by cross-section analysis.

With these considerations in mind we turn to the measures of long-term changes in the shares of various sectors in participation income. The changes are measured for two periods--from 1919-21 to 1955 and from 1929 to 1955. The latter period is used because the estimates for 1919-21 are much more approximate

than those for 1929 and later years, and for the S sector in particular are too crude to permit us to place much confidence in the results.

For both periods, the change in per capita income is measured in current dollars. Since prices have risen, the rates of increase shown are much larger than those in per capita income in constant prices. We know, however, that over both periods per capita income in constant prices did rise substantially. Thus, from 1927-29 to 1953-55, real personal income rose from 100 to 226, while population rose from 121.8 million in 1929 to 164.3 million in 1955, or only 35 percent.¹² Per capita income in constant prices, therefore, rose approximately 65 percent from 1929 to 1955, or at the rate of about 21 percent per decade. Likewise, our revised estimates of national income per capita, in 1929 prices, rose from \$542 in 1919-21 to \$984 in 1955, about 82 percent or 18.7 percent per decade.¹³

More pertinent to the analysis here is the question whether the rates of growth in per capita income in current prices and in constant prices for the various states are similar, at least to the extent that when we find sizeable differences in the former we can assume fairly similar differences in the latter. This depends upon whether there are significant differences among states in the changes over time in relevant prices. A tentative answer is suggested in a recently published study by Abner Hurwitz and Carlyle P. Stallings.¹⁴ In terms of 1947-49, the state consumer price indices calculated by the authors range, in 1929, from 68 to 75. In other words, the greatest difference among states in the percentage rise of price levels from 1929 to 1947-49 was from 100/75 to 100/68, i.e., from 33 to 47 percent. The differences among states in the rate of rise in per capita income in current prices were far greater--for our customary six groups from 290 to 145 percent for 1919-21 to 1955, or from 266 to 129 percent for 1929 to 1955. Of course, our periods are longer than those covered by Hurwitz-Stallings and may be characterized by greater differentials in price trends; and the Hurwitz-Stallings indices may understate these differentials since they take into account only the disparities in movements between rural and urban price trends appropriately weighted for each state. Nevertheless, the differences among states in the rate of growth of per capita income in current prices are so wide compared with those in regional price movements, that it still can be assumed that the interstate differences in rate of growth in per capita income in constant prices are in the same direction as, although of smaller magnitude than, the differences in the rate of growth in per capita income in current prices.

Table 15 provides us with a variety of data relating to movement over time in the shares in participation income of the three major sectors--for the period 1919-21 to 1955. We may first look at what happened over the period to the average shares for all states: the share of the A sector declined from about 25 to less than 10 percent; that of the M sector rose from 27.5 to 34 percent;

12. See Personal Income by States since 1929, p. 10 and Table 3.

13. Unpublished revisions of estimates prepared at the National Bureau of Economic Research.

14. See their "Interregional Differentials in Per Capita Real Income Change", Regional Income, Studies in Income and Wealth, Volume Twenty-One, Conference on Research in Income and Wealth, Princeton University Press for the National Bureau of Economic Research, 1957, pp. 195-264.

Table 15.
Changes in Percentage Shares of Three Major Sectors in Participation Income, 1919-21 to 1955, Groups of States by Rise in Total Income per Capita over the Period

| | Groups of States by Rise in Total Income per Capita | | | | | | Arith. Mean I- VI (Un- weighted) (7) | Wider Groups | | |
|--|---|-------|-------|--------|-------|-------|--|--------------|--------|-------|
| | I | II | III | IV | V | VI | | I+II | III+IV | V+VI |
| (1) | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) |
| Change in Per Capita Income | | | | | | | | | | |
| 1 Arith. mean (unweighted) 1919-21 (\$) | 373 | 461 | 538 | 611 | 636 | 762 | 564 | 417 | 574 | 699 |
| 2 Arith. mean (unweighted) 1955 (\$) | 1,457 | 1,568 | 1,727 | 1,826 | 1,754 | 1,866 | 1,700 | 1,512 | 1,776 | 1,810 |
| 3 % change, (2) over (1) | +290 | +240 | +221 | +199 | +176 | +145 | +201 | +263 | +209 | +159 |
| 4 Arith. mean of % change for individual states | +290 | +241 | +221 | +199 | +176 | +146 | +212 | +266 | +210 | +161 |
| Population Change | | | | | | | | | | |
| 5 Total pop., 1919-21 (millions) | 15.53 | 20.16 | 18.24 | 17.59 | 14.07 | 20.59 | 106.18 | 35.69 | 35.83 | 34.66 |
| 6 Total pop., 1955 (millions) | 24.21 | 29.53 | 27.44 | 24.84 | 19.30 | 38.12 | 163.44 | 53.74 | 52.28 | 57.42 |
| 7 % change, (6) over (5) | +55.9 | +46.5 | +50.4 | +41.2 | +37.2 | +85.1 | +53.9 | +50.6 | +45.9 | +65.7 |
| Share of A Sector | | | | | | | | | | |
| 8 Arith. mean, 1919-21 | 30.9 | 27.0 | 29.4 | 19.25 | 23.7 | 20.3 | 25.1 | 28.95 | 24.3 | 22.0 |
| 9 Arith. mean, 1955 | 11.2 | 10.1 | 12.8 | 7.9 | 8.1 | 8.3 | 9.7 | 10.65 | 10.35 | 8.2 |
| 10 Change, (9) - (8) | -19.7 | -16.9 | -16.6 | -11.35 | -15.6 | -12.0 | -15.4 | -18.3 | -13.95 | -13.8 |
| 11 Change as dev. from line 10, col. 7 | -4.3 | -1.5 | -1.2 | +4.05 | -0.2 | +3.4 | 0 | -2.9 | +1.45 | +1.6 |

| Share of M Sector | | | | | | | | | | | | |
|-------------------|-------------------------------------|-------|-------|------|------|-------|------|------|-------|-------|-------|--|
| 12 | Arith. mean, 1919-21 | 24.5 | 26.4 | 25.4 | 28.8 | 31.9 | 28.0 | 27.5 | 25.45 | 27.1 | 29.95 | |
| 13 | Arith. mean, 1955 | 32.0 | 36.9 | 34.1 | 34.7 | 35.7 | 30.6 | 34.0 | 34.45 | 34.4 | 33.15 | |
| 14 | Change, (13) - (12) | +7.5 | +10.5 | +8.7 | +5.9 | +3.8 | +2.6 | +6.5 | +9.0 | +7.3 | +3.2 | |
| 15 | Change as dev. from line 14, col. 7 | +1.0 | +4.0 | +2.2 | -0.6 | -2.7 | -3.9 | 0 | +2.5 | +0.8 | -3.3 | |
| Share of S Sector | | | | | | | | | | | | |
| 16 | Arith. mean, 1919-21 | 44.6 | 46.6 | 45.2 | 51.9 | 44.4 | 51.7 | 47.4 | 45.6 | 48.55 | 48.05 | |
| 17 | Arith. mean, 1955 | 56.9 | 53.0 | 53.1 | 57.4 | 56.2 | 61.1 | 56.3 | 54.95 | 55.25 | 58.65 | |
| 18 | Change, (17) - (16) | +12.3 | +6.4 | +7.9 | +5.5 | +11.8 | +9.4 | +8.9 | +9.35 | +6.7 | +10.6 | |
| 19 | Change as dev. from line 18, col. 7 | +3.4 | -2.5 | -1.0 | -3.4 | +2.9 | +0.5 | 0 | +0.45 | -2.2 | +1.7 | |

For states included in specific groups see App. Table 15.

For population, lines 5 and 6, entries are totals, rather than averages.

1919-21: All data derived from App. Table 13.

1955: Per capita income derived from Personal Income by States since 1929, Table 2. Population derived from ibid., Table 3. Shares derived from sources given in notes to Table 4.

Table 3. Shares derived from sources given in notes to Table 4.

and that of the S sector rose from 47.4 to over 56 percent (col. 7, lines 8-10, 12-14, 16-18). Cross-section analysis suggested the expectation of a marked decline in the share of the A sector, a marked rise in the share of the M sector; and, at most, a mild rise in the share of the S sector. Furthermore, in these respects, the results for interstate comparisons are quite parallel to those for international comparisons.

What about the effect of the rate of growth of income per capita? For each state we calculated the percentage increase in per capita income from 1919-21 to 1955; arrayed the states in decreasing order of the percentage rate of increase; and then formed six groups of eight states each. It is these groups that are distinguished in columns 1-6; and the averages for them are averaged further into three wider groups in columns 8-10 (except for population in lines 5 and 6, where totals are shown in all columns).

As already noted, the differences among states in the rate of increase in per capita income were quite substantial. A comparison of lines 3 and 4 shows that the arithmetic means of unweighted rates of increase are not much different from the rates based on the totals, i. e., weighted means. In the group with the highest rate of increase, the per capita income almost quadrupled; in group VI it rose to less than 2.5 times the original level.

The states with the highest rates of growth in per capita income had low per capita incomes in the initial year; and those with lowest rates of growth in per capita income had initially high per capita incomes (see line 1). In other words, in the country's growth during recent decades interstate inequalities in per capita income were reduced.

The six groups of states do not differ too much in population size, although some include more populous states than others. However, and more important, states in which per capita income grew more rapidly than the average were characterized by somewhat lower rates of growth of population than states in which per capita income grew more slowly (lines 5-7). Of course, since the latter were high income states, they were net gainers in the country's internal (and external) migration. But the negative association is not too marked; and the percentage increase in total income (i. e., per capita income multiplied by population) was still greater for groups I and II (451) than for groups III and IV (352), or groups V and VI (332).

What about the effects of the rate of growth in per capita income on the change in sector shares? The share of the A sector declined in all six groups of states; but the decline was greater in the states in which growth in per capita income was greatest. The excess of the change in the share within the combined groups over the change for all states shifts steadily from negative to positive--from greater to lesser decline (line 10, col. 8-10). Thus the results for the share of the A sector conform to the expectations derived from the cross-section analysis.

The changes in the share of the M sector also agree with our expectations. The share rose in all six groups, but it rose more in the groups in which per capita income grew at a higher rate (line 14).

The share of the S sector also rose fairly substantially in all six groups; but the association between the rate of growth of per capita income and the increase in the share is not as clear-cut as for the A and M sectors. While the rise

in the share of the S sector in group I was highest, those in groups V and VI were almost as high. This lack of clear association is, in a way, also in accordance with expectations, since the cross-section analysis suggested only a weak association between the share of the S sector in participation income and per capita income.

We test these results by considering the changes over the period 1929-55 (Table 16). The structure of this table is strictly parallel to that of Table 15 just discussed, except that the period covered is limited to the two and a half decades beginning in 1929. And the results--with respect to the decline in the all-state average share of the A sector, the rises in the all-state average shares of the M and S sectors, the large differences among states in the rate of growth of per capita income (and in this case in the rate of growth of total income also), the greater rises in per capita income in states with initially low per capita income, and finally, the close association between the rate of growth of per capita income and changes in the shares of the A and M sectors--are similar to those in Table 15.

The only difference worth noting is that in the movement of the share of the S sector. While the average for all states does rise from 1929 to 1955, as it did from 1919-21 to 1955, the rise is rather small, amounting to less than a tenth of the initial level, whereas it was close to a fifth in Table 15. In contrast, the share of the A sector dropped about six-tenths from 1919-21 to 1955 and well over five-tenths from 1929 to 1955; and the share of the M sector rose over a fifth from 1919-21 to 1955 and about a sixth from 1929 to 1955. For the shorter period covered in Table 16 the rise in the share of the S sector was far more moderate than for the longer period in Table 15, or than the relative changes in the shares of the A and M sectors in the comparable periods.

One can argue that this mild rise in the share of the S sector from 1929 to 1955 conforms with the narrow range of differences in the share of this sector associated with per capita income in cross-section analysis. And if so, the fairly clear association for this shorter period in Table 16, between the rate of growth of per capita income and the rise in the share of the S sector is again in accordance with our expectation. In other words, if the rise of the all-state share of the S sector over the period is too large in Table 15 to be consistent with the cross-section analysis, and if the rise is small enough in Table 16 to be so consistent, we would expect the lack of association indicated in Table 15, line 19, and the association indicated in Table 16, line 19.

G. Trends over Time in Subdivisions of the M Sector

For subdivisions of the M sector the available data permit the analysis for 1929-55 alone; but the period is sufficiently long to afford some view of the trends involved (Table 17). The cross-section association between the share of mining and per capita income was, on the whole, negative; and we do find that over the period, as per capita income grew, the share of mining declined. We would then expect that for states in which growth of per capita income was greatest, the decline in the share of mining would be larger than the countrywide average; and, conversely, for states in which the growth of per capita income was smallest, the decline in the share of mining would be smallest. The results do not conform to this expectation: the decline in the share of mining in groups I and II was smaller than for all forty-eight states, and not as great as the decline in groups V and VI. Clearly, some other factors were at play which can be revealed only by studying the subbranches of mining in greater detail.

Table 16.
Changes in Percentage Shares of Three Major Sectors in Participation Income, 1929 to 1955, Groups of States by Rise in Total Income per Capita over the Period

| | Groups of States by Rise in Total Income per Capita | | | | | Arith. Mean I- VI (Un- weighted) | Wider Groups | | |
|---|---|-------|-------|-------|-------|---|--------------|--------|-------|
| | I | II | III | IV | V | | I+II | III+IV | V+VI |
| | (1) | (2) | (3) | (4) | (5) | (7) | (8) | (9) | (10) |
| Change in Per Capita Income | | | | | | | | | |
| 1 Arith. mean (unweighted) | 350 | 440 | 539 | 689 | 768 | 617 | 395 | 614 | 842 |
| 2 Arith. mean (unweighted) | 1,282 | 1,424 | 1,572 | 1,862 | 1,960 | 1,700 | 1,353 | 1,717 | 2,029 |
| 3 % change, (2) over (1) | +266 | +224 | +192 | +170 | +155 | +176 | +243 | +180 | +141 |
| 4 Arith. mean of % change for individual states | +268 | +225 | +192 | +170 | +156 | +190 | +246 | +181 | +144 |
| Population Change | | | | | | | | | |
| 5 Total pop., 1929 (millions) | 15.79 | 19.40 | 14.65 | 12.08 | 17.47 | 121.29 | 35.19 | 26.73 | 59.37 |
| 6 Total pop., 1955 (millions) | 20.24 | 26.66 | 7.86 | 17.98 | 23.36 | 163.44 | 46.90 | 35.84 | 80.70 |
| 7 % change, (6) over (5) | +28.2 | +37.4 | +21.9 | +48.8 | +33.7 | +34.8 | +33.3 | +34.1 | +35.9 |
| Share of A Sector | | | | | | | | | |
| 8 Arith. mean, 1929 | 29.8 | 24.2 | 22.8 | 16.4 | 14.1 | 18.9 | 27.0 | 19.6 | 10.1 |
| 9 Arith. mean, 1955 | 15.4 | 12.7 | 11.4 | 8.9 | 6.3 | 9.75 | 14.05 | 10.15 | 5.05 |
| 10 Change, (9) - (8) | -14.4 | -11.5 | -11.4 | -7.5 | -7.8 | -9.15 | -12.95 | -9.45 | -5.1 |
| 11 Change as deviation from line 10, col. 7 | -5.25 | -2.35 | -2.25 | +1.65 | +1.35 | 0 | -3.8 | -0.3 | +4.05 |

| | | | | | | | | | | | | |
|---|------|------|------|-------|-------|------|------|-------|-------|------|--|--|
| Share of M Sector | | | | | | | | | | | | |
| 12 Arith. mean, 1929 | 20.8 | 22.3 | 26.4 | 28.5 | 35.8 | 40.0 | 29.0 | 21.55 | 27.45 | 37.9 | | |
| 13 Arith. mean, 1955 | 27.6 | 28.9 | 33.4 | 32.45 | 40.1 | 41.5 | 34.0 | 28.25 | 32.9 | 40.8 | | |
| 14 Change, (13) - (12) | +6.8 | +6.6 | +7.0 | +3.95 | +4.3 | +1.5 | +5.0 | +6.7 | +5.45 | +2.9 | | |
| 15 Change as deviation from line 14, col. 7 | +1.8 | +1.6 | +2.0 | -1.05 | -0.7 | -3.5 | 0 | +1.7 | +0.45 | -2.1 | | |
| Share of S Sector | | | | | | | | | | | | |
| 16 Arith. mean, 1929 | 49.4 | 53.5 | 50.9 | 55.0 | 50.05 | 53.9 | 52.1 | 51.45 | 52.95 | 52.0 | | |
| 17 Arith. mean, 1955 | 57.0 | 58.4 | 55.3 | 58.6 | 53.6 | 54.8 | 56.3 | 57.7 | 56.95 | 54.2 | | |
| 18 Change, (17) - (16) | +7.6 | +4.9 | +4.4 | +3.6 | +3.55 | +0.9 | +4.2 | +6.25 | +4.0 | +2.2 | | |
| 19 Change as deviation from line 18, col. 7 | +3.4 | +0.7 | +0.2 | -0.6 | -0.65 | -3.3 | 0 | +2.05 | -0.2 | -2.0 | | |

For states included in specific groups see App. Table 15.

For sources see notes (for 1955) to Table 15.

Table 17.
Changes in Percentage Shares of Subdivisions of the M Sector in Participation Income, 1929 to 1955, Groups of States by
Rise in Total Income per Capita over the Period

| | Groups of States by Rise in Total Income per Capita | | | | | | Arith. Mean I- VI (Un- weighted) (7) | Wider Groups | | |
|--|---|-----------|------------|-----------|----------|-----------|--|--------------|---------------|--------------|
| | VI | | | | | | | I+II (8) | III+IV (9) | V+VI (10) |
| | I (1) | II (2) | III (3) | IV (4) | V (5) | VI (6) | | | | |
| Share of Mining | | | | | | | | | | |
| 1 Arith. mean, 1929 | 2.5 | 5.3 | 6.1 | 5.5 | 2.5 | 1.9 | 4.0 | 3.9 | 5.8 | 2.2 |
| 2 Arith. mean, 1955 | 1.9 | 4.8 | 4.7 | 2.2 | 1.6 | 0.8 | 2.7 | 3.35 | 3.45 | 1.2 |
| 3 Change, (2) - (1) | -0.6 | -0.5 | -1.4 | -3.3 | -0.9 | -1.1 | -1.3 | -0.55 | -2.35 | -1.0 |
| 4 Change as deviation from line 3, col. 7 | +0.7 | +0.8 | -0.1 | -2.0 | +0.4 | +0.2 | 0 | +0.75 | -1.05 | +0.3 |
| Share of Manufacturing | | | | | | | | | | |
| 5 Arith. mean, 1929 | 14.9 | 13.0 | 16.4 | 18.3 | 27.0 | 31.7 | 20.2 | 13.95 | 17.35 | 29.35 |
| 6 Arith. mean, 1955 | 20.2 | 17.6 | 21.95 | 22.7 | 31.6 | 35.1 | 24.9 | 18.9 | 22.3 | 33.35 |
| 7 Change, (6) - (5) | +5.3 | +4.6 | +5.55 | +4.4 | +4.6 | +3.4 | +4.7 | +4.95 | +4.95 | +4.0 |
| 8 Change as deviation from line 7, col. 7 | +0.6 | -0.1 | +0.85 | -0.3 | -0.1 | -1.3 | 0 | +0.25 | +0.25 | -0.7 |
| Share of Construction | | | | | | | | | | |
| 9 Arith. mean, 1929 | 3.4 | 4.0 | 3.9 | 4.8 | 6.3 | 6.4 | 4.8 | 3.7 | 4.35 | 6.35 |
| 10 Arith. mean, 1955 | 5.5 | 6.5 | 6.75 | 7.5 | 6.9 | 5.6 | 6.5 | 6.0 | 7.1 | 6.25 |
| 11 Change, (10) - (9) | +2.1 | +2.5 | +2.85 | +2.7 | +0.6 | -0.8 | +1.7 | +2.3 | +2.75 | -0.1 |
| 12 Change as deviation from line 11, col. 7 | +0.4 | +0.8 | +1.15 | +1.0 | -1.1 | -2.5 | 0 | +0.6 | +1.05 | -1.8 |

For states included in specific groups see App. Table 15.

For sources see notes to Table 4.

For manufacturing, cross-section analysis indicated a positive association between the share in participation income and per capita income; and over the period 1929-55 with a rise in countrywide per capita income there was a rise in the share of manufacturing. Here we would expect that the share of manufacturing in participation income would increase more in groups I and II than in groups V and VI or than the average for all forty-eight states. This positive association between the rate of growth of per capita income and the rise in the share of manufacturing is observed, although the movements among the six groups are somewhat erratic. It would have been interesting to test the findings by subdividing manufacturing between the material-oriented and fabricating branches, but the available data do not permit this distinction.

The share of construction in participation income for the forty-eight states rose from 1929 to 1955, as expected from the positive association with per capita income differentials in cross-section analysis. The further expectation of a positive association between the change in per capita income and the change in the share of construction in participation income is only partly confirmed: the rise in the share is smallest in group V and the share actually declines in group VI, but the greatest rises occur in groups III and IV, not in groups I and II.

To what extent are these findings derived from comparisons among states likely to hold for international comparisons? While the answers can only be conjectural, there is some value in attempting to state them.

The share of mining in participation, and total, income of nations would probably decline--once the economic growth had passed beyond the stage in which exploitation of the mineral resources was the important focus of growth, i.e., after the early stages of development of "new" countries that are outposts of the older developed Western areas or after the initial impact upon the old and underdeveloped areas of the material-seeking contacts of these economically advanced nations. If so, international comparisons for a wide enough sample of countries are likely to show, on the whole, a decline in the share of mining in total income--particularly if relatively recent time periods are covered; and the finding would be similar to that for the forty-eight states in Table 17. Furthermore, it is not likely that there would be a significant positive association between international differences in the rate of growth of per capita income and the magnitudes of the decline in the share of mining, because the latter is affected by different trends in the various categories of mining and by accidents in the location of mineral deposits. On the whole, findings in international comparisons would probably not differ from those suggested by interstate comparisons.

Findings in international comparisons relating to trends in the share of manufacturing would also probably be similar to those in interstate comparisons. With growth in income per capita, the share of manufacturing would rise over time--although beyond a certain level such rises might be quite small. Also, those countries showing greater growth of per capita income than others would, by and large, show a greater rise in the share of manufacturing in participation or total income.

No such consilience can be expected between international and interstate comparisons with respect to long-term trends in the share of construction. Construction, as defined here, is dominated by residential and related structures, and is thus highly responsive to rates of addition to population. As seen in the first paper of this series, there is little significant association, at least within the sample of largely developed countries covered, between the rates of growth in per

Table 18.
Changes in Percentage Shares of Major Components of the S Sector in Participation Income, 1929 to 1955, Groups of States by Rise in Total Income per Capita over the Period

| | Groups of States by Rise in Total Income per Capita | | | | | | Arith. Mean I- VI (Un- weighted) (7) | Wider Groups | | |
|---|---|-------|-------|-------|-------|-------|--|--------------|--------|-------|
| | I | II | III | IV | V | VI | | I+II | III+IV | V+VI |
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) |
| Share of Transportation and Public Utilities (T) | | | | | | | | | | |
| 1 Arithmetic mean, 1929 | 9.6 | 11.1 | 11.45 | 11.15 | 10.2 | 8.8 | 10.4 | 10.35 | 11.3 | 9.5 |
| 2 Arithmetic mean, 1955 | 7.35 | 8.5 | 9.3 | 8.1 | 8.5 | 7.5 | 8.2 | 7.9 | 8.7 | 8.0 |
| 3 Change, (2) - (1) | -2.25 | -2.6 | -2.15 | -3.05 | -1.7 | -1.3 | -2.2 | -2.45 | -2.6 | -1.5 |
| 4 Change as deviation from line 3, col. 7 | -0.05 | -0.4 | +0.05 | -0.85 | +0.5 | +0.9 | 0 | -0.25 | -0.4 | +0.7 |
| Share of Commerce (C) | | | | | | | | | | |
| 5 Arithmetic mean, 1929 | 19.6 | 22.1 | 22.2 | 22.65 | 20.0 | 24.9 | 21.9 | 20.85 | 22.4 | 22.45 |
| 6 Arithmetic mean, 1955 | 21.65 | 23.9 | 23.8 | 23.55 | 21.8 | 23.6 | 23.05 | 22.8 | 23.7 | 22.7 |
| 7 Change, (6) - (5) | +2.05 | +1.8 | +1.6 | +0.9 | +1.8 | -1.3 | +1.15 | +1.95 | +1.3 | +0.25 |
| 8 Change as deviation from line 7, col. 7 | +0.9 | +0.65 | +0.45 | -0.25 | +0.65 | -2.45 | 0 | +0.8 | +0.15 | -0.9 |
| Share of T+C | | | | | | | | | | |
| 9 Arithmetic mean, 1929 | 29.3 | 33.25 | 33.7 | 33.8 | 30.2 | 33.7 | 32.3 | 31.3 | 33.75 | 31.95 |
| 10 Arithmetic mean, 1955 | 29.0 | 32.4 | 33.1 | 31.7 | 30.4 | 31.1 | 31.3 | 30.7 | 32.4 | 30.75 |
| 11 Change, (10) - (9) | -0.3 | -0.85 | -0.6 | -2.1 | +0.2 | -2.6 | -1.0 | -0.6 | -1.35 | -1.2 |
| 12 Change as deviation from line 11, col. 7 | +0.7 | +0.15 | +0.4 | -1.1 | +1.2 | -1.6 | 0 | +0.4 | -0.35 | -0.2 |

| | | | | | | | | | | | |
|---------------------------------------|---|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| <u>Share of Private Services (PS)</u> | | | | | | | | | | | |
| 13 | Arithmetic mean, 1929 | 11.6 | 12.5 | 10.1 | 12.6 | 11.9 | 13.3 | 12.0 | 12.05 | 11.35 | 12.6 |
| 14 | Arithmetic mean, 1955 | 9.3 | 10.7 | 9.3 | 12.0 | 10.1 | 11.6 | 10.5 | 10.0 | 10.65 | 10.85 |
| 15 | Change, (14) - (13) | -2.3 | -1.8 | -0.8 | -0.6 | -1.8 | -1.7 | -1.5 | -2.05 | -0.7 | -1.75 |
| 16 | Change as deviation from line 15, col. 7 | -0.8 | -0.3 | +0.7 | +0.9 | -0.3 | -0.2 | 0 | -0.55 | +0.8 | -0.25 |
| <u>Share of Governments (G)</u> | | | | | | | | | | | |
| 17 | Arithmetic mean, 1929 | 8.6 | 7.85 | 7.1 | 8.7 | 7.95 | 6.9 | 7.85 | 8.2 | 7.9 | 7.4 |
| 18 | Arithmetic mean, 1955 | 18.65 | 15.3 | 12.8 | 14.95 | 13.1 | 12.1 | 14.5 | 17.0 | 13.9 | 12.6 |
| 19 | Change, (18) - (17) | +10.05 | +7.45 | +5.7 | +6.25 | +5.15 | +5.2 | +6.65 | +8.8 | +6.0 | +5.2 |
| 20 | Change as deviation from line 19, col. 7 | +3.4 | +0.8 | -0.95 | -0.4 | -1.5 | -1.45 | 0 | +2.15 | -0.65 | -1.45 |
| <u>Share of OS (PS+G)</u> | | | | | | | | | | | |
| 21 | Arithmetic mean, 1929 | 20.2 | 20.4 | 17.2 | 21.25 | 19.8 | 20.2 | 19.8 | 20.3 | 19.2 | 20.0 |
| 22 | Arithmetic mean, 1955 | 27.9 | 26.0 | 22.2 | 26.9 | 23.2 | 23.7 | 25.0 | 26.95 | 24.55 | 23.45 |
| 23 | Change, (22) - (21) | +7.7 | +5.6 | +5.0 | +5.65 | +3.4 | +3.5 | +5.2 | +6.65 | +5.35 | +3.45 |
| 24 | Change as deviation from line 23, col. 7 | +2.5 | +0.4 | -0.2 | +0.45 | -1.8 | -1.7 | 0 | +1.45 | +0.15 | -1.75 |

For states included in specific groups see App. Table 15.

For sources see notes to Table 4.

capita income and in population. In some countries high rates of growth in per capita income are associated with low rates of addition to population, in others with high. It follows that the association between the changes in the share of construction in total income and the rate of growth in per capita income could not be significant; and it is impossible to say whether the share of construction for a wide sample of countries would show a rising or declining trend, as per capita income grew.

H. Trends over Time in Components and Subdivisions of the S Sector

The share of the transportation and public utility component for the forty-eight states declined from 1929 to 1955, whereas the cross-section analysis suggested a positive although weak association between the share and per capita income (Table 18). As expected, the association between the rate of growth of per capita income and the decline in the share of the T component is not high. While the states in groups V and VI, with the lowest rates of growth in per capita income, do show smaller declines in the share than the decline for all the states, the largest drop is in the share in group IV and there is a substantial one in group II. On the whole, the case lends some support to the general hypothesis advanced above.

The average share of the commerce component rises slightly from 1929 to 1955—in accordance with the weak but positive association shown in cross-section analysis. Also, as expected, the states with the highest rates of growth in per capita income show the greatest rises in the share.

The results for the T and C components cannot be translated to international comparisons. We indicated above that the interstate and international spreads in the share of the T component are quite different; and this is to some extent true of the share of the commerce component, which shows much less positive association with per capita income in cross-section analysis in international comparisons than in interstate comparisons. If only for this reason, not only the long-term trends in the shares of these components, and therefore of T+C, among nations, but also the associations between the rate of growth of per capita income and changes in the shares of these components in total income, may be quite different from those for the United States for 1929-55.

The average share of the private services component (PS) declines from 1929 to 1955, whereas in cross-section analysis the association between this share and per capita income is positive and pronounced. We would, therefore, expect the correlation between the rate of growth of per capita income and the decline in the share to be irregular. And this is what we find in line 16: the decline is as large in group V and almost as large in group VI as in group II, and it is smallest in groups III and IV.

The trend in the share of governments constitutes the first clear exception to our initial hypothesis. On the whole, the cross-association of the share of governments with per capita income is negative; yet the share of governments rises substantially from 1929 to 1955. Even more important, by and large, there is clear positive association between the rate of growth of per capita income and the rise in the share: these rises are highest in groups I and II and lowest in groups V and VI. The explanation of this finding can best be made in connection with the measures for the more detailed subdivisions, to which we now turn (Table 19).

Since trade dominates the commerce component, the findings for the two are quite similar. There is a moderate rise from 1929 to 1955 in the average

Table 19.
Changes in Percentage Shares of Subdivisions of Major Components of the S Sector in Participation Income, 1929 to 1955, Groups of States by Rise in Total Income per Capita over the Period

| | Groups of States by Rise in Total Income per Capita | | | | | Arith. Mean I- VI (Un- weighted) (7) | Wider Groups | | |
|--|---|-------|-------|-------|-------|--|--------------|--------|-------|
| | I | II | III | IV | V | | I+II | III+IV | V+VI |
| | (1) | (2) | (3) | (4) | (5) | (6) | (8) | (9) | (10) |
| SUBDIVISIONS OF C | | | | | | | | | |
| Share of Trade | | | | | | | | | |
| 1 Arithmetic mean, 1929 | 16.4 | 17.9 | 18.4 | 18.5 | 15.6 | 18.6 | 17.6 | 18.45 | 17.1 |
| 2 Arithmetic mean, 1955 | 18.5 | 20.4 | 20.4 | 20.1 | 18.2 | 18.9 | 19.4 | 20.25 | 18.55 |
| 3 Change, (2) - (1) | +2.1 | +2.5 | +2.0 | +1.6 | +2.6 | +0.3 | +1.8 | +1.8 | +1.45 |
| 4 Change as deviation from line 3, col. 7 | +0.3 | +0.7 | +0.2 | -0.2 | +0.8 | -1.5 | 0 | 0 | -0.35 |
| Share of Finance | | | | | | | | | |
| 5 Arithmetic mean, 1929 | 3.25 | 4.2 | 3.85 | 4.1 | 4.4 | 6.3 | 4.35 | 4.0 | 5.35 |
| 6 Arithmetic mean, 1955 | 3.2 | 3.6 | 3.4 | 3.4 | 3.7 | 4.7 | 3.7 | 3.4 | 4.2 |
| 7 Change, (6) - (5) | -0.05 | -0.6 | -0.45 | -0.7 | -0.7 | -1.6 | -0.65 | -0.6 | -1.15 |
| 8 Change as deviation from line 7, col. 7 | +0.6 | +0.05 | +0.2 | -0.05 | -0.05 | -0.95 | 0 | +0.05 | -0.5 |
| SUBDIVISIONS OF PS | | | | | | | | | |
| Share of Hotels and Amusements | | | | | | | | | |
| 9 Arithmetic mean, 1929 | 1.4 | 1.8 | 1.5 | 2.7 | 1.8 | 2.05 | 1.9 | 2.1 | 1.9 |
| 10 Arithmetic mean, 1955 | 0.9 | 1.2 | 1.05 | 3.15 | 1.2 | 1.3 | 1.5 | 2.1 | 1.25 |
| 11 Change, (10) - (9) | -0.5 | -0.6 | -0.45 | +0.45 | -0.6 | -0.75 | -0.4 | 0 | -0.65 |
| 12 Change as deviation from line 11, col. 7 | -0.1 | -0.2 | -0.05 | +0.85 | -0.2 | -0.35 | 0 | +0.4 | -0.25 |

(Continued on next page)

Table 19. (Continued)

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) |
|--|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Share of Personal and Domestic Services | | | | | | | | | | |
| 13 Arithmetic mean, 1929 | 5.5 | 5.1 | 3.1 | 3.6 | 4.4 | 4.7 | 4.4 | 5.3 | 3.35 | 4.55 |
| 14 Arithmetic mean, 1955 | 3.0 | 3.1 | 2.0 | 2.2 | 2.4 | 2.6 | 2.55 | 3.05 | 2.1 | 2.5 |
| 15 Change, (14) - (13) | -2.5 | -2.0 | -1.1 | -1.4 | -2.0 | -2.1 | -1.85 | -2.25 | -1.25 | -2.05 |
| 16 Change as deviation from line 15, col. 7 | -0.65 | -0.15 | +0.75 | +0.45 | -0.15 | -0.25 | 0 | -0.4 | +0.6 | -0.2 |
| Share of Business and Repair Services | | | | | | | | | | |
| 17 Arithmetic mean, 1929 | 0.8 | 0.9 | 0.85 | 1.3 | 1.05 | 1.0 | 1.0 | 0.85 | 1.1 | 1.0 |
| 18 Arithmetic mean, 1955 | 1.0 | 1.3 | 0.95 | 1.3 | 1.3 | 1.6 | 1.2 | 1.15 | 1.1 | 1.45 |
| 19 Change, (18) - (17) | +0.2 | +0.4 | +0.1 | 0 | +0.25 | +0.6 | +0.2 | +0.3 | 0 | +0.45 |
| 20 Change as deviation from line 19, col. 7 | 0 | +0.2 | -0.1 | -0.2 | +0.05 | +0.35 | 0 | +0.1 | -0.2 | +0.25 |
| Share of Professional and Social Services | | | | | | | | | | |
| 21 Arithmetic mean, 1929 | 4.0 | 4.7 | 4.7 | 5.0 | 4.7 | 5.5 | 4.8 | 4.35 | 4.85 | 5.1 |
| 22 Arithmetic mean, 1955 | 4.4 | 5.1 | 5.4 | 5.25 | 5.1 | 6.1 | 5.2 | 4.75 | 5.3 | 5.6 |
| 23 Change, (22) - (21) | +0.4 | +0.4 | +0.7 | +0.25 | +0.4 | +0.6 | +0.4 | +0.4 | +0.45 | +0.5 |
| 24 Change as deviation from line 23, col. 7 | 0 | 0 | +0.3 | -0.15 | 0 | +0.2 | 0 | 0 | +0.05 | +0.1 |
| SUBDIVISIONS OF G | | | | | | | | | | |
| Share of State and Local Government | | | | | | | | | | |
| 25 Arithmetic mean, 1929 | 5.1 | 5.2 | 5.1 | 6.0 | 5.3 | 5.1 | 5.3 | 5.15 | 5.55 | 5.2 |
| 26 Arithmetic mean, 1955 | 6.3 | 6.7 | 6.6 | 7.0 | 6.2 | 6.2 | 6.5 | 6.5 | 6.8 | 6.2 |
| 27 Change, (26) - (25) | +1.2 | +1.5 | +1.5 | +1.0 | +0.9 | +1.1 | +1.2 | +1.35 | +1.25 | +1.0 |
| 28 Change as deviation from line 27, col. 7 | 0 | +0.3 | +0.3 | -0.2 | -0.3 | -0.1 | 0 | +0.15 | +0.05 | -0.2 |

| Share of Federal Government | | | | | | | | | | | |
|-----------------------------|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 29 | Arithmetic mean, 1929 | 3.5 | 2.6 | 2.0 | 2.7 | 2.7 | 1.8 | 2.55 | 3.05 | 2.35 | 2.25 |
| 30 | Arithmetic mean, 1955 | 12.3 | 8.6 | 6.2 | 8.0 | 6.9 | 5.85 | 8.0 | 10.45 | 7.1 | 6.4 |
| 31 | Change, (30) - (29) | +8.8 | +6.0 | +4.2 | +5.3 | +4.2 | +4.05 | +5.45 | +7.4 | +4.75 | +4.15 |
| 32 | Change as deviation from line 31, col. 7 | +3.35 | +0.55 | -1.25 | -0.15 | -1.25 | -1.4 | 0 | +1.95 | -0.7 | -1.3 |

For states included in specific groups see App. Table 15.

For sources see notes to Table 13.

share, not inconsistent with the trace of positive association in cross-section analysis; and, by and large, states in which per capita income grew more rapidly show greater rises in the share in participation income.

The movement of the share of finance is more surprising. The average share declines from 1929 to 1955, whereas the cross-section analysis indicates clear positive association between it and per capita income. Furthermore, there is marked correlation between the rate of growth of per capita income and the decline in the share: the share for states with high rates of growth either does not decline (group I) or declines much less than the average (groups II and III), and the share for group VI declines most. Clearly, the disparity between the cross-section association and the trend over time in the share made also for a negative correlation between the rate of growth of per capita income and the change in the share over time.

Of the subdivisions of the PS component, two--hotels and amusement, and personal and domestic service--are characterized by declines in the shares; two--business and repair service, and professional and related services--by rises, if rather small. The cross-section association suggested a rising trend for three subdivisions, and a possible decline for one--personal and domestic service.

Because the percentages involved are small and their movements may therefore be erratic, consistent association between the rate of growth of per capita income and changes in the shares is not clearly evident. For the hotels and amusement subdivision, the association is irregular--as might have been expected; and the same is true of personal and domestic service. The results for these two, if they can be trusted, conform to our general hypothesis. The association between the rate of growth of per capita income and the rise in the share of business and repair service is irregular--whereas we should have expected a more consistent correlation. The similar association for the share of professional and related services is also rather irregular--and this is again contrary to expectation based on the positive association in cross-section analysis and the upward trend of the share over time. However, since the changes over time are small, and the errors of estimate may be substantial, the evidence should not be given much weight.

We come now to the two subdivisions of government, which should shed some light on the finding of a substantial rise in the share of government and a clear positive association between that rise and the rate of growth of income per capita. From 1929 to 1955 the shares of both state and local and Federal government rise, and the latter far more than the former. Furthermore, for each subdivision there is clear positive association between the rate of growth of per capita income and the rise in the share.

The results for state and local government are relatively easy to explain: an increased per capita income associated with increased urbanization should produce some rise in the share--and the greater the growth of per capita income, the greater the rise in the rate of urbanization. In any case, the intergroup differentials in the rises in the share of state and local government are quite small (see line 28). But for Federal government another hypothesis must obviously be introduced. The explanation may lie in the fact, already noted, that the states in groups I and II are those with the lowest per capita income in 1929 and in fact are still among the low income states toward the end of the period. Even an allocation of Federal employment strictly proportional to the non-Federally employed labor force by states would--given the countrywide rise in Federal employment--cause the share of Federal government in total participation income to rise more in the low

income states than in the high--and hence more in the states in which per capita income grew more rapidly. If we add the possible effects of deliberate attempts by the Federal government to provide more employment in the low income and economically less advanced states, the results shown in lines 31 and 32 of Table 19 are easily understandable.

Not much of the analysis of the subdivisions of the S sector can be applied directly to international comparisons. The demand for and supply of such rather specific complexes of goods as are covered in finance, or hotels and amusement, or business and repair services, or even professional and related services, are affected too much by the diverse institutional patterns of the various countries to show a clear association with per capita income alone. Whatever associations and trends were shown in interstate comparisons within the United States cannot, for that reason, provide a sound basis for extrapolation to international comparisons. Yet some of the results do have a more general bearing. For example, the associations and trends found for the shares of finance and personal and domestic service may well suggest those that we might find in international comparisons; and what has been said of the effect of the rise in the share of the Federal government in reducing interstate differentials in income per capita has a bearing upon international comparisons--both to the extent that international government agencies may channel their aid as our Federal government channels employment opportunities, as well as in the complementary sense that because there is no truly effective international government with economic power of its own, the kind of trend observed among the states in this country cannot be expected on the international scene.

III. Industrial Distribution of the Labor Force

A. Cross-Section Analysis of the Three Major Sectors

The discussion of the industrial distribution of the labor force for the forty-eight states is strictly parallel to that of the industrial distribution of income. The basic data for 1940 and 1950 were taken from a series of rather elaborate estimates of labor force by states prepared at the University of Pennsylvania Study of Population Redistribution and Economic Growth by Mrs. Ann R. Miller and Mrs. Carol Brainerd.¹⁵ For 1920 and 1930 they were derived from the Census of Population. The estimates exclude farm home labor in 1920 and include unpaid family labor in 1930, 1940, and 1950; and there are other elements of incomparability, the detailed discussion of which can best be consulted in the volume cited above.¹⁶ The broad

15. See Population Redistribution and Economic Growth, United States, 1870-1950, Vol. I, by Everett S. Lee, Ann Ratner Miller, Carol P. Brainerd, and Richard A. Easterlin, American Philosophical Society Memoirs, Vol. 45, Philadelphia, 1957, pp. 363-634.

16. One element of incomparability between the industrial distributions of income and the labor force should be noted here. In the former all government employee income is assigned to the government sector; in the latter government employees are included in the industry sectors of their activity. However, government employees are of importance only in construction and transportation among the industry sectors distinguished here. In footnotes to Tables 24 and 26 we show the shares in 1950 of these two sectors in the labor force, excluding government employees, and in a footnote to Table 33, the corresponding relative of income per worker for transportation.

differences among states and over time are nevertheless still valid--certainly for the general purposes of our analysis. The value of the data lies in the fact that, unlike the income totals, they are not affected by differential levels of prices for identical goods and resource inputs among the states; and they reflect the grouping of population by its direct participation in the various sectors of the country's productive system.

Table 20 presents the usual measures of partition values and dispersion for the distributions of states by the shares of the three major sectors in the labor force. Two conclusions stand out quite clearly. First, as in the distributions by the shares in income, the dispersion of the share of the S sector is far narrower than that of the share of either the A or the M sector. Second, the relative dispersions of the shares in the labor force of the M and S sectors tend to be somewhat wider than those of the shares in income. The average relative range (for the four years covered in both Tables 20 and 4) is 1.53 for the share of the M sector in income, 1.57 for its share in the labor force--and the latter exceeds the former in three years out of four; the corresponding averages for the ratio of the interquartile range to the median are 0.62 and 0.65 respectively, and for the ratio of the average deviation to the mean--0.31 and 0.33. Likewise, for the S sector the average relative range of its share in income is 0.47, of its share in the labor force--0.64; and the corresponding averages for the ratios of the interquartile range to the median are 0.21 and 0.21 respectively and those for the ratio of the average deviation to the mean are 0.11 and 0.13. These differences, although small, are persistent.

The much narrower dispersion in the share of the S sector than in that of the A and M sectors in the labor force, and the wider dispersion of the shares of the M and S sectors in the labor force than in their shares in income are results that parallel the findings in international comparisons. There is, however, a significant difference: in the international comparisons the dispersion in the share of the S sector in the labor force (including or excluding family labor) is much wider than in its share in income, the ratio of the interquartile range to the median being 0.69 or 0.50 compared with 0.34. In the interstate comparisons the dispersion of the shares of the S sector in both income and the labor force is far narrower, and the difference between the two is far smaller, absolutely and relatively. If the differentials in income per worker in the S sector, invertedly related to the share of the S sector (in either income or labor force), are relatively far narrower in interstate than in international comparisons, they would explain this difference in findings. This point will become more evident when we consider arithmetic means of shares by economic level groups, and will be dealt with explicitly when we discuss intersectoral differences in income per worker.

The grouping in Table 21 is by income per capita, in the usual six groups. Again, the association of per capita income with the share of the A sector is negative; and its association with the share of the M sector is positive, although here also the trough is reached, at least in two of the four years, in group V or IV rather than in group VI. The positive association between per capita income and the share of the S sector is more clear-cut here than in the case of its share in income. Indeed, this is the major difference between the evidence for the shares in the labor force and in income. The range of the shares of the M and S sectors is wider for labor force than it is for income in Table 5. The averages for the M and S sectors of the ratios of the shares in groups I and II to those in groups V and VI are 1.72 and 1.26 respectively; those in Table 5, for the shares in income, are 1.55 and 1.08--definitely smaller, and the difference is observed in each of the four years.

Table 20.
Partition Values and Measures of Dispersion, Distributions of States by Shares of Three Major Sectors in Labor Force,
Selected Years, 1920 to 1950

| | Lowest 3 States (1) | First Quartile (2) | Median (3) | Third Quartile (4) | Highest 3 States (5) | Full Range | | Interquartile Range | | Avg. Dev. from Arith. Mean | |
|-----------------------------------|---------------------------|--------------------------|---------------|--------------------------|----------------------------|----------------|---------------------------|---------------------|---------------------------|-------------------------------|---------------------------------------|
| | | | | | | (5)-(1) (6) | As Ratio to (3) (7) | (4)-(2) (8) | As Ratio to (3) (9) | Abso- lute (10) | As Ratio to Arith. Mean (11) |
| | | | | | | | | | | | |
| Distribution by Share of A Sector | | | | | | | | | | | |
| 1 1920 | 3.5 | 18.6 | 28.8 | 41.5 | 57.4 | 53.9 | 1.87 | 22.9 | 0.80 | 12.15 | 0.41 |
| 2 1930 | 3.7 | 16.8 | 27.3 | 40.25 | 61.5 | 57.8 | 2.12 | 23.45 | 0.86 | 13.31 | 0.45 |
| 3 1940 | 2.5 | 12.5 | 23.45 | 33.15 | 53.4 | 50.9 | 2.17 | 20.65 | 0.88 | 11.56 | 0.49 |
| 4 1950 | 1.8 | 7.9 | 15.3 | 23.2 | 41.7 | 39.9 | 2.61 | 15.3 | 1.00 | 8.54 | 0.52 |
| Distribution by Share of M Sector | | | | | | | | | | | |
| 5 1920 | 9.7 | 19.4 | 26.5 | 38.2 | 58.1 | 48.4 | 1.83 | 18.8 | 0.71 | 11.22 | 0.38 |
| 6 1930 | 9.1 | 20.85 | 26.0 | 37.25 | 52.2 | 43.1 | 1.66 | 16.4 | 0.63 | 9.62 | 0.34 |
| 7 1940 | 9.7 | 19.95 | 25.9 | 36.35 | 50.1 | 40.4 | 1.56 | 16.4 | 0.63 | 9.08 | 0.32 |
| 8 1950 | 12.7 | 22.0 | 29.0 | 39.7 | 48.6 | 35.9 | 1.24 | 17.7 | 0.61 | 8.66 | 0.28 |
| Distribution by Share of S Sector | | | | | | | | | | | |
| 9 1920 | 27.8 | 36.9 | 39.95 | 45.4 | 55.0 | 27.2 | 0.68 | 8.5 | 0.21 | 5.57 | 0.14 |
| 10 1930 | 25.9 | 37.65 | 42.6 | 47.1 | 55.6 | 29.7 | 0.70 | 9.45 | 0.22 | 5.87 | 0.14 |
| 11 1940 | 32.3 | 43.4 | 47.05 | 53.0 | 62.2 | 29.9 | 0.64 | 9.6 | 0.20 | 5.92 | 0.12 |
| 12 1950 | 41.1 | 47.1 | 52.6 | 58.3 | 68.3 | 27.2 | 0.52 | 11.2 | 0.21 | 6.09 | 0.11 |

See notes to Table 4.

For underlying data see App. Tables 13 and 14.

Arithmetic means underlying col. 10 and 11 are from Table 21, col. 7.

Table 21.

Arithmetic Means of Percentage Shares of Three Major Sectors in Labor Force,
Groups of States by Total Income per Capita, Selected Years, 1920 to 1950

| | Groups of States by Total Income per Capita | | | | | | Arith. Mean I-VI (Un- weighted) | Ratio of I+II to V+VI |
|--------------------------|---|-------|-------|-------|-------|-------|---------------------------------------|-----------------------------|
| | I | II | III | IV | V | VI | | |
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
| Share of A Sector | | | | | | | | |
| 1 1920 | 12.6 | 17.4 | 28.35 | 33.0 | 37.7 | 48.6 | 29.6 | 0.35 |
| 2 1930 | 10.6 | 13.9 | 27.3 | 34.0 | 38.85 | 51.8 | 29.4 | 0.27 |
| 3 1940 | 7.8 | 12.7 | 21.25 | 26.95 | 34.1 | 40.05 | 23.8 | 0.28 |
| 4 1950 | 5.7 | 10.2 | 18.3 | 19.2 | 18.4 | 27.0 | 16.5 | 0.35 |
| Share of M Sector | | | | | | | | |
| 5 1920 | 39.8 | 40.3 | 32.7 | 24.15 | 22.2 | 19.2 | 29.7 | 1.93 |
| 6 1930 | 39.0 | 41.4 | 29.05 | 21.4 | 22.6 | 17.8 | 28.5 | 1.99 |
| 7 1940 | 37.45 | 37.25 | 30.6 | 22.2 | 20.0 | 23.6 | 28.5 | 1.71 |
| 8 1950 | 37.95 | 34.0 | 29.7 | 24.0 | 29.1 | 28.3 | 30.5 | 1.25 |
| Share of S Sector | | | | | | | | |
| 9 1920 | 47.5 | 42.3 | 38.9 | 42.9 | 40.05 | 32.2 | 40.6 | 1.24 |
| 10 1930 | 50.4 | 44.7 | 43.65 | 44.6 | 38.6 | 30.4 | 42.1 | 1.38 |
| 11 1940 | 54.75 | 50.05 | 48.1 | 50.85 | 45.9 | 36.35 | 47.7 | 1.27 |
| 12 1950 | 56.35 | 55.8 | 52.0 | 56.8 | 52.5 | 44.7 | 53.0 | 1.15 |

For states included in specific groups see App. Table 15.

For sources see notes to Table 20.

When we consider the group means of shares of the three major sectors in the labor force in Table 21 and those in the international comparison (Table 10 of the earlier paper), two conclusions stand out. First, despite the much narrower range of per capita incomes in interstate comparisons, the range of differences in the shares of the A and M sectors is wide--not much narrower than in the international comparisons. For 1919-21 the average of the A sector ranges from 15.0 percent in groups I and II to 43.1 percent in groups V and VI, a ratio of almost 3 to 1; and the relative range is wider in 1930 and 1940, and about the same in 1950. In the international comparison, the average share of the top third (groups I and II) is 22.5 percent (including unpaid family labor) or 18.6 percent (excluding unpaid family labor); in the lower groups (V, VI, and VII) 67.0 percent or 56.4 percent respectively--a range of about 3 to 1. For the share of the M sector, the range from groups I and II to groups V and VI in Table 21, for all years except 1950, is 1.75 or 2 to 1; in the international comparison, the range is from 36 percent to 13 percent (for labor force including unpaid family labor) or from 38 percent to 18 percent (for labor force excluding unpaid family labor). It is only for the share of the S sector that a significant difference in range emerges between the interstate and the international comparisons: in the latter it is from 42 percent to 20 percent (including unpaid family labor) or from 44 percent to 26 percent (excluding unpaid family labor); in the former the range from groups I and II to groups V and VI is at most 1.4 to 1, but on the average is less than 1.3 to 1. In all these respects, the international and interstate differences in the shares of the three major sectors in the labor force are similar to those in the shares in income.

There is a second aspect of similarity between the international and the interstate comparisons: in both the share of the S sector in the labor force shows a more clear-cut positive association with per capita income than its share in income. However, this difference is far greater in the international comparisons than in the interstate comparisons. In the former, the average share of the S sector in income changes from 47 percent in the 19 high income countries to 36 percent in the 22 low income countries (Table 3 of the earlier paper), while its share in the labor force changes from 42 percent to 20 percent (including unpaid family labor) and 42 percent to 26 percent (excluding unpaid family labor) (Table 10 of the earlier paper). This is a shift from a range of 1.3 to 1, to a range of either 2.1 or 1.6 to 1. In the interstate comparisons, the shift from the share in income to the share in labor force raises the range from 1.08 to 1.26--a far smaller effect. The interstate differentials in per worker income in the S sector must behave quite differently--in magnitude if not in direction--from the international differentials.

The purpose of Table 22, in which states are grouped by participation income per worker, is to check the conclusions of Table 21. The result, like the check on the association of shares in income with per unit income, confirms fully the findings already summarized. Again we find the negative association of the share of the A sector in the labor force, this time with participation income per worker; and the positive associations of the shares of the M and S sectors. Again we find that the range of the shares of the M and S sectors in the labor force is significantly wider than that of their shares in income. Finally, the shift from the income per capita to the participation income per worker basis of grouping

Table 22.

Arithmetic Means of Percentage Shares of Three Major Sectors in Labor Force, Groups of States by Participation Income per Worker, Selected Years, 1920 to 1950

| Groups of States by Participation Income per Worker | | | | | | Arith. Mean | Ratio of | |
|---|-------|-------|-------|-------|-------|--------------------|--------------|------|
| I | II | III | IV | V | VI | I-VI (Un-weighted) | I+II to V+VI | |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | |
| Share of A Sector | | | | | | | | |
| 1 1920 | 18.3 | 20.7 | 28.75 | 34.2 | 29.7 | 46.0 | 29.6 | 0.52 |
| 2 1930 | 9.8 | 19.05 | 25.95 | 30.55 | 41.5 | 49.5 | 29.4 | 0.32 |
| 3 1940 | 8.9 | 11.7 | 23.3 | 23.9 | 35.0 | 40.05 | 23.8 | 0.27 |
| 4 1950 | 8.6 | 8.9 | 17.7 | 19.35 | 17.25 | 27.0 | 16.5 | 0.40 |
| Share of M Sector | | | | | | | | |
| 5 1920 | 31.9 | 38.3 | 31.3 | 23.7 | 32.9 | 20.25 | 29.7 | 1.32 |
| 6 1930 | 39.75 | 37.5 | 28.8 | 27.4 | 18.55 | 19.3 | 28.55 | 2.04 |
| 7 1940 | 37.7 | 36.6 | 28.5 | 28.7 | 15.7 | 23.6 | 28.5 | 1.89 |
| 8 1950 | 35.0 | 36.4 | 26.2 | 28.1 | 29.05 | 28.3 | 30.5 | 1.24 |
| Share of S Sector | | | | | | | | |
| 9 1920 | 49.8 | 41.0 | 39.9 | 42.1 | 37.35 | 33.75 | 40.65 | 1.28 |
| 10 1930 | 50.45 | 43.45 | 45.25 | 42.05 | 39.95 | 31.2 | 42.1 | 1.32 |
| 11 1940 | 53.5 | 51.7 | 48.2 | 47.4 | 49.3 | 36.35 | 47.7 | 1.23 |
| 12 1950 | 56.4 | 54.7 | 56.1 | 52.55 | 53.7 | 44.7 | 53.0 | 1.13 |

For states included in specific groups see App. Table 15.

For sources see notes to Table 20.

produces relatively little difference in the range of the shares of the various sectors in labor force despite the fact that the range of per capita income is significantly wider than that of participation income per worker. There is little need, therefore, to be concerned with this alternative basis of grouping; and it follows, in general, that many other indices of economic performance per unit--whether person or worker--would yield fairly similar results in an analysis of the type presented here, since they are all quite closely interrelated.

B. Cross-Section Analysis of Subdivisions of the M Sector

The data on the subdivisions of the M sector in the labor force are available for fewer years; but they are sufficient to reveal a clear parallelism between the shares in income and in the labor force (Table 23).

First, it is apparent that the relative dispersion in the share of mining in the labor force is appreciably wider than in the share of either manufacturing or construction; and that the dispersion is narrowest in the share of construction. This result is strictly analogous to that of dispersion of the shares of these three subdivisions in participation income.

Second, by and large, there is not too much difference between the dispersion of the shares in labor force and that of the shares in income. For mining, the average for the three years covered in Table 23 of the ratio of the average deviation to the mean is 0.98; the average from Table 7 for the share in participation income is 1.03, slightly higher. For manufacturing the average of the same measure in Table 23 is 0.48; for the share in participation income it is also 0.48. For construction, the average of the same measure for the two years in Table 23 is 0.16; for the share in participation income it is 0.20. There are some differences, and they may be significant, but this could be established only by further detailed analysis, which is beyond the limits of this already long paper. For the present, it may be noted that the differences are rather small and the dispersion of the shares in the labor force and in participation income, for these three subdivisions of the M sector, can be taken as approximately the same.

The movements of the shares in the labor force by groups of states classified by per capita income again reproduce the patterns observed for the shares in participation income (Table 24). The share of mining rises from low levels in groups I and II to a peak in group V and then drops sharply--the association with per capita income thus being, on the whole, negative. The share of manufacturing drops from high levels in groups I and II to a trough in group IV or V, and then rises again in group VI--but the level in group VI is still appreciably lower than in groups I and II and the association with per capita income is thus positive and fairly pronounced. There is a positive association between the share of construction and per capita income--but it is clear only in 1940 and is quite weak in 1950. In all these respects, except for the behavior of the share of construction in 1950, these findings parallel those for shares in participation income, and even the levels of the shares are not too different in the two distributions.

It should perhaps be added that while the sources of the estimates of the labor force and of income are often the same--in the sense that the basic censuses provide the information necessary for estimating both labor force and participation income, the similarity of the results for the shares in income and in labor force is not a meaningless statistical necessity. A census frequently shows a share of a sector in the labor force of a state that is quite different from the share

Table 23.
Partition Values and Measures of Dispersion, Distribution of States by Shares of Three Subdivisions of the M Sector in Labor Force, Selected Years, 1930 to 1950

| | Lowest 3 States (1) | First Quartile (2) | Median (3) | Third Quartile (4) | Highest 3 States (5) | Full Range | | Interquartile Range | | Avg. Dev. from Arith. Mean | |
|--|---------------------------|--------------------------|---------------|--------------------------|----------------------------|----------------|---------------------------|---------------------|---------------------------|-------------------------------|---------------------------------------|
| | | | | | | (5)-(1) (6) | As Ratio to (3) (7) | (4)-(2) (8) | As Ratio to (3) (9) | Abso- lute (10) | As Ratio to Arith. Mean (11) |
| | | | | | | | | | | | |
| Distribution by Share of Mining | | | | | | | | | | | |
| 1 1930 | 0.1 | 0.45 | 1.4 | 3.8 | 15.8 | 15.7 | 11.21 | 3.35 | 2.39 | 3.07 | 0.98 |
| 2 1940 | 0.1 | 0.3 | 1.3 | 3.9 | 15.6 | 15.5 | 11.92 | 3.6 | 2.77 | 2.94 | 0.99 |
| 3 1950 | 0.1 | 0.25 | 1.0 | 2.8 | 12.2 | 12.1 | 12.10 | 2.55 | 2.55 | 2.16 | 0.98 |
| Distribution by Share of Manufacturing | | | | | | | | | | | |
| 4 1940 | 3.9 | 9.8 | 18.2 | 28.45 | 43.7 | 39.8 | 2.19 | 18.65 | 1.02 | 9.90 | 0.50 |
| 5 1950 | 4.3 | 11.95 | 19.9 | 31.6 | 42.4 | 38.1 | 1.91 | 19.65 | 0.99 | 9.88 | 0.46 |
| Distribution by Share of Construction | | | | | | | | | | | |
| 7 1940 | 3.7 | 5.2 | 5.8 | 6.5 | 8.2 | 4.5 | 0.78 | 1.3 | 0.22 | 0.86 | 0.15 |
| 8 1950 | 5.2 | 5.8 | 6.4 | 8.0 | 9.7 | 4.5 | 0.70 | 2.2 | 0.34 | 1.15 | 0.17 |

See notes to Table 4.

For sources, see notes to Table 20.

Arithmetic means underlying col. 10 and 11 are from Table 24, col. 7.

Table 24.

Arithmetic Means of Percentage Shares of Three Subdivisions of the M Sector in Labor Force, Groups of States by Total Income per Capita, Selected Years, 1930 to 1950

| | Groups of States by Total Income per Capita | | | | | | Arith. | Wider Groups | | |
|-------------------------------|---|-------|------|------|------|------|-------------------------|--------------|--------|------|
| | I | II | III | IV | V | VI | Mean I-VI (Un-weighted) | I+II | III+IV | V+VI |
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) |
| <u>Share of Mining</u> | | | | | | | | | | |
| 1 1930 | 2.5 | 1.9 | 2.75 | 4.5 | 6.1 | 1.0 | 3.12 | 2.2 | 3.6 | 3.55 |
| 2 1940 | 2.6 | 2.5 | 2.1 | 3.2 | 5.5 | 1.9 | 2.97 | 2.55 | 2.65 | 3.7 |
| 3 1950 | 1.05 | 1.8 | 1.4 | 2.3 | 5.0 | 1.7 | 2.21 | 1.4 | 1.85 | 3.35 |
| <u>Share of Manufacturing</u> | | | | | | | | | | |
| 4 1940 | 28.2 | 28.55 | 22.6 | 12.8 | 9.0 | 17.2 | 19.7 | 28.4 | 17.7 | 13.1 |
| 5 1950 | 30.2 | 25.0 | 22.2 | 13.9 | 16.8 | 20.6 | 21.45 | 27.6 | 18.05 | 18.7 |
| <u>Share of Construction</u> | | | | | | | | | | |
| 6 1940 | 6.65 | 6.2 | 5.9 | 6.2 | 5.5 | 4.5 | 5.82 | 6.4 | 6.05 | 5.0 |
| 7 1950 ^a | 6.7 | 7.2 | 6.1 | 7.8 | 7.3 | 6.0 | 6.85 | 6.95 | 6.95 | 6.65 |

a. The shares excluding government employees are: I-6.15, II-6.4, III-5.5, IV-7.0, V-6.35, and VI-5.2.

For states included in specific groups see App. Table 15.

For sources see notes to Table 20.

of that sector in participation income; and the estimates are not the product of numbers and a constant per unit income for each state. This fact would not be stressed if the findings for the distributions of the labor force and participation income were not so similar.

C. Cross-Section Analysis of Components of the S Sector

The data on labor force do not permit us to distinguish all the major components and subdivisions of the S sector that we could study in the distribution of participation income. For three years, 1930, 1940, and 1950, we have data on the three major components, T, C, and OS; and for one or two years we have data on the professional and private household (domestic) services subdivisions (Table 25).

The dispersions of the shares are somewhat different from those for the shares in income: in general, they are wider. Thus, the average ratio of the average deviation to the arithmetic mean for the share of the T component is 0.20 in Table 25, but only 0.17 in Table 11. The same is true of the private household subdivision, where the averages for the two years are 0.36 in Table 25 and 0.25

Notes to Table 25.

See notes to Table 4.

For sources see notes to Table 20.

Arithmetic means underlying col. 10 and 11 are from Table 26, col. 7.

Table 25.
Partition Values and Measures of Dispersion, Distributions of States by Shares of Components of the S Sector in Labor Force, Selected Years, 1930 to 1950

| | Lowest 3 States (1) | First Quartile (2) | Median (3) | Third Quartile (4) | Highest 3 States (5) | Full Range | | Interquartile Range | | Avg. Dev. from Arith. Mean | |
|--|---------------------------|--------------------------|---------------|--------------------------|----------------------------|----------------|---------------------------|---------------------|---------------------------|-------------------------------|---------------------------------------|
| | | | | | | (5)-(1) (6) | As Ratio to (3) (7) | (4)-(2) (8) | As Ratio to (3) (9) | Abso- lute (10) | As Ratio to Arith. Mean (11) |
| | | | | | | | | | | | |
| Distribution by Share of Transportation and Public Utilities (T) | | | | | | | | | | | |
| 1 1930 | 4.6 | 7.9 | 9.8 | 11.0 | 14.1 | 9.5 | 0.97 | 3.1 | 0.32 | 1.78 | 0.19 |
| 2 1940 | 3.2 | 5.3 | 6.8 | 8.0 | 11.3 | 8.1 | 1.19 | 2.7 | 0.40 | 1.48 | 0.22 |
| 3 1950 | 4.2 | 6.6 | 7.8 | 8.85 | 11.3 | 7.1 | 0.91 | 2.25 | 0.29 | 1.38 | 0.18 |
| Distribution by Share of Commerce (C) | | | | | | | | | | | |
| 4 1930 | 7.4 | 11.4 | 14.4 | 16.6 | 21.2 | 13.8 | 0.96 | 5.2 | 0.36 | 3.02 | 0.22 |
| 5 1940 | 10.5 | 15.6 | 18.8 | 21.1 | 25.4 | 14.9 | 0.79 | 5.5 | 0.29 | 3.20 | 0.17 |
| 6 1950 | 15.1 | 18.5 | 21.2 | 23.15 | 26.5 | 11.4 | 0.54 | 4.65 | 0.22 | 2.40 | 0.11 |
| Distribution by Share of T+C | | | | | | | | | | | |
| 7 1930 | 12.1 | 20.65 | 23.7 | 27.15 | 31.9 | 19.8 | 0.84 | 6.5 | 0.27 | 4.03 | 0.17 |
| 8 1940 | 13.8 | 21.3 | 25.5 | 29.2 | 33.7 | 19.9 | 0.78 | 7.9 | 0.31 | 4.23 | 0.17 |
| 9 1950 | 19.3 | 25.5 | 29.4 | 31.95 | 34.6 | 15.3 | 0.52 | 6.45 | 0.22 | 3.48 | 0.12 |
| Distribution by Share of OS | | | | | | | | | | | |
| 10 1930 | 13.1 | 16.9 | 18.65 | 20.1 | 25.7 | 12.6 | 0.68 | 3.2 | 0.17 | 2.14 | 0.11 |
| 11 1940 | 17.5 | 20.3 | 22.55 | 24.35 | 29.4 | 11.9 | 0.53 | 4.05 | 0.18 | 2.35 | 0.10 |
| 12 1950 | 18.7 | 21.6 | 22.6 | 27.2 | 35.0 | 16.3 | 0.72 | 5.6 | 0.25 | 3.65 | 0.15 |
| Distribution by Shares of Selected Subdivisions | | | | | | | | | | | |
| 13 Prof. services, 1930 | 3.9 | 6.25 | 7.2 | 8.1 | 9.6 | 5.7 | 0.79 | 1.85 | 0.26 | 1.15 | 0.16 |
| 14 Private household, 1940 | 3.1 | 3.45 | 4.15 | 6.1 | 9.2 | 6.1 | 1.47 | 2.65 | 0.64 | 1.49 | 0.32 |
| 15 Private household, 1950 | 1.2 | 1.6 | 2.0 | 3.35 | 5.6 | 4.4 | 2.20 | 1.75 | 0.88 | 1.05 | 0.41 |

Notes for this table are at the bottom of the previous page.

Table 26.

Arithmetic Means of Percentage Shares of Components of the S Sector in Labor Force, Groups of States by Total Income per Capita, Selected Years, 1930 to 1950

| | Groups of States by Total Income per Capita | | | | | | Arith. Mean I- VI (Un- weighted) | Wider Groups | | |
|---|---|------|------|-------|-------|-------|---|--------------|--------|-------|
| | I | II | III | IV | V | VI | | I+II | III+IV | V+VI |
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) |
| Share of Transportation and Public Utilities (T) | | | | | | | | | | |
| 1 1930 | 10.9 | 9.6 | 10.3 | 10.5 | 9.2 | 5.9 | 9.40 | 10.25 | 10.4 | 7.55 |
| 2 1940 | 8.1 | 7.6 | 7.0 | 7.4 | 6.4 | 4.35 | 6.81 | 7.85 | 7.2 | 5.4 |
| 3 1950 ^a | 8.1 | 8.6 | 8.2 | 8.2 | 7.4 | 5.6 | 7.68 | 8.35 | 8.2 | 6.5 |
| Share of Commerce (C) | | | | | | | | | | |
| 4 1930 | 18.0 | 15.8 | 14.5 | 14.8 | 12.0 | 9.0 | 14.0 | 16.9 | 14.65 | 10.5 |
| 5 1940 | 22.1 | 19.8 | 19.1 | 19.1 | 17.3 | 12.4 | 18.3 | 20.95 | 19.1 | 14.85 |
| 6 1950 | 22.75 | 21.6 | 22.1 | 22.55 | 19.6 | 16.9 | 20.9 | 22.2 | 22.3 | 18.25 |
| Share of T+C | | | | | | | | | | |
| 7 1930 | 28.9 | 25.4 | 24.8 | 25.3 | 21.2 | 14.9 | 23.4 | 27.15 | 25.05 | 18.05 |
| 8 1940 | 30.2 | 27.4 | 26.1 | 26.5 | 23.7 | 16.75 | 25.1 | 28.8 | 26.3 | 20.2 |
| 9 1950 | 30.85 | 30.2 | 30.3 | 30.75 | 27.0 | 22.5 | 28.6 | 30.5 | 30.5 | 24.75 |
| Share of OS | | | | | | | | | | |
| 10 1930 | 21.55 | 19.3 | 18.9 | 19.5 | 17.4 | 15.4 | 18.7 | 20.4 | 19.2 | 16.4 |
| 11 1940 | 24.6 | 22.6 | 22.0 | 24.3 | 22.2 | 19.55 | 22.5 | 23.6 | 23.15 | 20.9 |
| 12 1950 | 25.4 | 25.6 | 21.7 | 26.0 | 25.55 | 22.2 | 24.4 | 25.5 | 23.85 | 23.9 |
| Shares of Selected Subdivisions | | | | | | | | | | |
| 13 Prof. services, | | | | | | | | | | |
| 1930 | 8.1 | 7.3 | 7.5 | 8.0 | 6.4 | 4.9 | 7.03 | 7.7 | 7.75 | 5.65 |
| 14 Private household, | | | | | | | | | | |
| 1940 | 4.0 | 3.7 | 3.9 | 4.8 | 4.8 | 6.9 | 4.68 | 3.85 | 4.35 | 5.85 |
| 15 Private household, | | | | | | | | | | |
| 1950 | 2.2 | 1.8 | 1.7 | 2.4 | 2.8 | 4.4 | 2.55 | 2.0 | 2.05 | 3.6 |

a. The shares excluding government employees are: I-7.5, II-8.0, III-7.8, IV-7.6, V-6.95, and VI-5.1.

For states included in specific groups see App. Table 15.

For sources see notes to Table 20.

in Table 13, and the professional services subdivision where they are 0.16 and 0.13 respectively.

From our standpoint such a change is important because it is often accompanied by a change in the association between component or subdivision shares and per capita income. With this in mind we turn to Table 26 which deals directly with this association. By and large, the shares of the various components in labor force are positive associated with per capita income--whether or not the shares in income of the same components are so associated; and the positive association is far more pronounced than for the shares in income. This conclusion is true of all components and subdivisions in Table 26, with the single exception of private households (domestic service).

Thus, for the T component, the share in 1929 in Table 26 ranges from 10.25 percent in groups I and II to 7.55 percent in groups V and VI--a ratio of 1.3 to 1; the share in income in 1929 in Table 12 is 10 percent for groups I and II and about the same for groups V and VI. In 1940, the range in Table 26 is from 7.85 percent to 5.4 percent, in Table 12 from 9.0 percent to 8.5 percent. The range of the share of the C component in labor force is also wider than the range of its share in income. The share in the labor force of the OS component, unlike its share in income which showed no association with per capita income, shows a clear positive association. Finally, for the professional services subdivision the range in Table 26 is from 7.7 percent to 5.65 percent or about 1.4 to 1, whereas in Table 14 it is from 5.2 percent to 4.2 percent, or about 1.2 to 1.

The share in the labor force of the domestic services subdivision deserves separate mention. We find here the same U-shaped movement that we found for the share of personal service and private households in income (Table 14)--high levels in group I, decline in intermediate groups, and a sharp rise to a peak in group VI. This similarity persists despite the somewhat narrower scope of the subdivision in Table 26 than in Table 14. But the interesting point is the difference between Tables 14 and 26 in the amplitude of that movement. In 1940, the average share in income for groups V and VI is 3.8 percent, compared with 3.5 percent in groups I and II, and 3.2 percent in groups III and IV. The corresponding averages for the share in the labor force are 5.85, 3.85, and 4.35 percent, respectively. The comparison for 1950 yields a similar result, viz., the share in the labor force is much higher in the low income states, particularly group VI, than the share in income.

The more pronounced positive correlation with per capita income of the shares of the components of the S sector in the labor force than of their shares in income, and the wider range of the former, are findings that parallel the results of the international comparisons. Table 13 of the earlier paper shows the clear positive association between the shares of the T, C, and OS components in the labor force and per capita income, in contrast with the very weak association of the shares of the same components, particularly C and OS, in income. The only difference is that the ranges of the shares in the labor force are much wider among nations than among the states within this country. This point was noted in the discussion of the share of the S sector as a whole; and it recurs here in connection with its major components.

D. Trends over Time

Since we have no industrial distribution of the labor force by states for 1955, the period that we cover in studying trends over time is somewhat shorter than that for income; and, of course, fewer detailed subdivisions are available. In all other respects the analysis here is along the lines followed in studying changes over time in the shares in participation income (Table 27).

The results are similar in many respects. Here also the rate of growth in per capita income was above the average for the states with initially low incomes, and below the average for those with initially high incomes; but despite this trend toward equalization, the per capita incomes in the states in groups I and II were still well below the average at the terminal date. There are similarities in Tables 27 and 16 also with respect to population change in relation to changes in income.

From 1920 to 1950, the share of the A sector in the labor force declined quite sharply, that of the M sector rose by a small margin, and that of the S

Table 27.
Changes in Percentage Shares of Three Major Sectors in Labor Force, 1920 to 1950, Groups of States by Rise in Total Income per Capita over the Period

| | Groups of States by Rise in Total Income per Capita | | | | | | Arith. Mean I- VI (Un- weighted) (7) | Wider Groups | | |
|--|---|-------|-------|-------|--------|-------|--|--------------|--------|-------|
| | I | II | III | IV | V | VI | | I+II | III+IV | V+VI |
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) |
| Change in Per Capita Income | | | | | | | | | | |
| 1 Arith. mean (unweighted) 1919-21 (\$) | 394 | 452 | 517 | 606 | 649 | 764 | 564 | 423 | 562 | 706 |
| 2 Arith. mean (unweighted) 1950 (\$) | 1,226 | 1,260 | 1,353 | 1,478 | 1,473 | 1,558 | 1,391 | 1,243 | 1,416 | 1,516 |
| 3 % change, (2) over (1) | +211 | +179 | +162 | +144 | +127 | +104 | +147 | +194 | +152 | +115 |
| 4 Arith. mean of % change for individual states | +210 | +179 | +162 | +144 | +127 | +105 | +155 | +194 | +153 | +116 |
| Population Change | | | | | | | | | | |
| 5 Total pop., 1919-21 (millions) | 14.39 | 17.23 | 18.14 | 21.94 | 14.25 | 20.21 | 106.16 | 31.62 | 40.08 | 34.46 |
| 6 Total pop., 1950 (millions) | 20.95 | 23.24 | 24.39 | 29.45 | 18.92 | 33.48 | 150.43 | 44.19 | 53.84 | 52.40 |
| 7 % change, (6) over (5) | +45.6 | +34.9 | +34.5 | +34.2 | +32.8 | +65.7 | +41.7 | +39.8 | +34.3 | +52.1 |
| Share of A Sector | | | | | | | | | | |
| 8 Arith. mean, 1920 | 39.0 | 40.8 | 31.5 | 25.0 | 25.45 | 15.9 | 29.6 | 39.9 | 28.25 | 20.7 |
| 9 Arith. mean, 1950 | 21.1 | 24.1 | 18.2 | 14.6 | 12.9 | 7.9 | 16.5 | 22.6 | 16.4 | 10.4 |
| 10 Change, (9) - (8) | -17.9 | -16.7 | -13.3 | -10.4 | -12.55 | -8.0 | -13.1 | -17.3 | -11.85 | -10.3 |
| 11 Change as deviation from line 10, col. 7 | -4.8 | -3.6 | -0.2 | +2.7 | +0.55 | +5.1 | 0 | -4.2 | +1.25 | +2.8 |

Table 28.
Changes in Percentage Shares of Three Major Sectors in Labor Force, 1930 to 1950, Groups of States by Rise in Total Income per Capita over the Period

| | Groups of States by Rise in Total Income per Capita | | | | | Arith. Mean I- VI (Un- weighted) (7) | Wider Groups | | |
|---|---|-------|-------|-------|-------|--|--------------|--------|-------|
| | I | II | III | IV | V | | I+II | III+IV | V+VI |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) |
| Change in Per Capita Income | | | | | | | | | |
| 1 Arith. mean (unweighted) | 383 | 417 | 536 | 666 | 795 | 905 | 617 | 400 | 850 |
| 2 Arith. mean (unweighted) | 1,138 | 1,093 | 1,317 | 1,510 | 1,632 | 1,659 | 1,392 | 1,115 | 1,413 |
| 3 % change, (2) over (1) | +197 | +162 | +146 | +127 | +105 | +83 | +126 | +179 | +94 |
| 4 Arith. mean of % change for individual states | +199 | +162 | +146 | +127 | +105 | +84 | +137 | +180 | +95 |
| Population Change | | | | | | | | | |
| 5 Total pop., 1929 (millions) | 17.75 | 14.02 | 15.42 | 10.73 | 30.72 | 32.64 | 121.28 | 31.77 | 26.15 |
| 6 Total pop., 1950 (millions) | 22.64 | 16.27 | 18.22 | 13.81 | 36.83 | 42.68 | 150.43 | 38.91 | 32.01 |
| 7 % change, (6) over (5) | +27.5 | +16.0 | +18.0 | +28.7 | +19.9 | +30.8 | +24.0 | +22.5 | +22.4 |
| Share of A Sector | | | | | | | | | |
| 8 Arith. mean, 1930 | 46.0 | 46.8 | 32.5 | 25.7 | 14.7 | 10.65 | 29.4 | 46.4 | 29.1 |
| 9 Arith. mean, 1950 | 25.2 | 26.5 | 19.4 | 14.0 | 7.9 | 5.8 | 16.5 | 25.85 | 16.7 |
| 10 Change, (9) - (8) | -20.8 | -20.3 | -13.1 | -11.7 | -6.8 | -4.85 | -12.9 | -20.55 | -12.4 |
| 11 Change as deviation from line 10, col. 7 | -7.9 | -7.4 | -0.2 | +1.2 | +6.1 | +8.05 | 0 | -7.65 | +0.5 |
| | | | | | | | | | +7.05 |

| | | | | | | | | | | | | |
|---|-------|-------|--------|-------|------|-------|-------|-------|--------|-------|--|--|
| Share of M Sector | | | | | | | | | | | | |
| 12 Arith. mean, 1930 | 18.5 | 18.1 | 25.6 | 26.3 | 40.7 | 42.15 | 28.6 | 18.3 | 25.95 | 41.4 | | |
| 13 Arith. mean, 1950 | 24.25 | 23.7 | 27.5 | 25.2 | 41.8 | 40.5 | 30.5 | 24.0 | 26.35 | 41.15 | | |
| 14 Change, (13) - (12) | +5.75 | +5.6 | +1.9 | -1.1 | +1.1 | -1.65 | +1.9 | +5.7 | +0.4 | -0.25 | | |
| 15 Change as deviation from line 14, col. 7 | +3.85 | +3.7 | 0 | -3.0 | -0.8 | -3.55 | 0 | +3.8 | -1.5 | -2.15 | | |
| Share of S Sector | | | | | | | | | | | | |
| 16 Arith. mean, 1930 | 35.55 | 35.1 | 41.85 | 48.0 | 44.6 | 47.2 | 42.0 | 35.3 | 44.9 | 45.9 | | |
| 17 Arith. mean, 1950 | 50.55 | 49.8 | 53.1 | 60.8 | 50.3 | 53.7 | 53.0 | 50.2 | 56.95 | 52.0 | | |
| 18 Change, (17) - (16) | +15.0 | +14.7 | +11.25 | +12.8 | +5.7 | +6.5 | +11.0 | +14.9 | +12.05 | +6.1 | | |
| 19 Change as deviation from line 18, col. 7 | +4.0 | +3.7 | +0.25 | +1.8 | -5.3 | -4.5 | 0 | +3.9 | +1.05 | -4.9 | | |

For states included in specific groups see App. Table 15.

For sources for lines 1-7 see notes to Table 15, date for 1929 and 1950 being from the same source as those for 1955.

For sources for shares see notes to Table 20.

sector rose quite appreciably. These changes correspond more or less to what we might have expected from the movements in the shares in income and the cross-section associations--except that the rise in the share of the M sector is much smaller and that in the share of the S sector is much larger than in the respective shares in income.

With the rise in per capita income ranging in Table 27 from 211 percent in group I to 104 percent in group VI, we should consider the effects on changes in the shares. There was clear positive association between the rate of growth of income per capita and the changes in the shares of the A and M sectors (lines 11 and 15). For the states with the highest rises in per capita income, the share of the A sector in the labor force dropped most appreciably and the share of the M sector rose more than the average for all states; and conversely for the states with the smallest rises in income per capita. No such regular association can be observed for changes in the share of the S sector in the labor force (line 18). In all these respects, the findings for trends over time in the shares in the labor force parallel those for the shares in participation income.

Table 28 repeats the measures of Table 27 but for two decades from 1930 to 1950--in order to exclude the less reliable estimates for 1920. Practically all the findings for the longer period are confirmed by those for the shorter period. Here also the share of the A sector in the labor force declines sharply, and there is clear positive association between the rate of growth of per capita income and the decline in the share. Here the share of the M sector in the labor force rises, and more appreciably than for the longer period in Table 27; and again we find a clear positive association between the growth of per capita income and the rise in the share. Here again the share of the S sector rises, and by a large margin; but, unlike the case for the longer period, there is a clear positive association between the growth of per capita income and the rise in the share. We found a similar change in the association in dealing with trends in the share of the S sector in participation income, when we shifted from the period 1919-21 to 1955 to the period 1929 to 1955.

The shifts over time in the shares of the three major sectors in the labor force indicated in Tables 27 and 28 are similar to those in international comparisons--where the decline in the share of the A sector and the rise in the share of the S sector were quite substantial, whereas the rise in the share of the M sector, if any, was relatively small. And we may infer that the associations between the rate of growth of per capita income and the changes in shares in the labor force in international comparisons are similar to those found in interstate comparisons: fairly clear for the shares of the A and M sectors and perhaps not as pronounced and regular for the share of the S sector.

Table 29 summarizes the changes in the shares in the labor force of mining and of three major components of the S sector from 1930 to 1950. Like its share in income, the share of mining in the labor force declines; and here again the association between the growth of income per capita and the decline in the share of mining is irregular.

The shares of the distinguishable components of the S sector in the labor force rise over the period, with the significant exception of the share of the T component, which, like its share in income, declines. In this respect the findings for the shares in the labor force are similar to those for the shares in income.

However, there are some differences in the association between the rate of growth of per capita income and the changes in the shares of the labor force and of participation income. In Table 18 this association for the share of the T component is somewhat irregular but on the whole positive: states in which the per capita income grew at rates above the average show a somewhat greater decline in the share in income, and those in groups V and VI show the smallest decline. In Table 29 the opposite association is observed: states in groups I and II exhibit the smallest declines in the share of the T component, whereas states in groups IV, V, and VI exhibit the largest declines. The explanation of this difference in behavior is not at hand.

For other components of the S sector, the associations between the growth of per capita income and the changes in the shares in the labor force are all clear and positive. In this respect, the results in Table 29 agree with those shown for the shares of the same components in participation income.

The bearing of the findings in Table 29 upon comparisons among nations is not easily inferrable. However, it may be suggested that in countries in which the share of mining in the labor force declines and the shares of the C and OS components of the S sector rise, we might find similar associations between the rate of growth of per capita income and the changes in the shares in the labor force--an irregular association with changes in the share of mining, and a fairly regular and positive association with changes in the shares of the C and OS components.

IV. Intersectoral Differences in Participation Income per Worker

A. Cross-Section Analysis

In the earlier paper on international comparisons we divided total income originating in each sector by the number in the labor force attached to it, and expressed this ratio as a relative of a similar ratio for the country as a whole (obtained by dividing total countrywide income by total countrywide labor force). We found that the relative income per worker for the A sector was usually below and that for the M+S sector was usually above the countrywide average; that the relative income per worker was usually higher in the S sector than in the M sector; that within the S sector, relative income per worker in the T+C division was usually higher than that in the OS division; and finally, that these intersectoral differences in total income per worker were wider in the less developed countries with low income per capita than in the more developed countries with higher income per capita.

With these findings for international comparisons in mind, we turn to a similar analysis of the intersectoral differences in income per worker for the forty-eight states. The analysis proceeds along similar lines, being based on the ratio for each state of the percentage share of a given sector or component in income to its percentage share in the labor force. A ratio of less than 1 indicates that the sectoral level of income per worker is below the average for the state as a whole; a ratio of more than 1 means that the sectoral level is above the statewide average. The only difference in the procedure is that here we use participation, rather than total, income.

Table 30 presents some characteristics of the distributions of relative incomes per worker for the three major sectors, for four years spanning a period of some three decades. While the estimates for 1919-21 leave much to be desired,

Table 29.
Changes in Percentage Shares of Mining and of Components of the S Sector in Labor Force, 1930 to 1950, Groups of States by Rise in Total Income per Capita over the Period

| | Groups of States by Rise in Total Income per Capita | | | | | | Arith. Mean I- VI (Un- weighted) | Wider Groups | | |
|--|---|-------|-------|-------|-------|------|---|--------------|--------|-------|
| | I | II | III | IV | V | VI | | I+II | III+IV | V+VI |
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) |
| Share of Mining | | | | | | | | | | |
| 1 Arith. mean, 1930 | 1.55 | 2.9 | 6.2 | 5.4 | 1.8 | 1.0 | 3.14 | 2.2 | 5.8 | 1.4 |
| 2 Arith. mean, 1950 | 1.6 | 2.2 | 5.5 | 2.5 | 0.95 | 0.5 | 2.21 | 1.9 | 4.0 | 0.7 |
| 3 Change, (2) - (1) | +0.05 | -0.7 | -0.7 | -2.9 | -0.85 | -0.5 | -0.9 | -0.3 | -1.8 | -0.7 |
| 4 Change as deviation from line 3, col. 7 | +0.95 | +0.2 | +0.2 | -2.0 | +0.05 | +0.4 | 0 | +0.6 | -0.9 | +0.2 |
| Share of T | | | | | | | | | | |
| 5 Arith. mean, 1930 | 7.6 | 8.3 | 9.9 | 11.55 | 10.0 | 9.1 | 9.4 | 7.95 | 10.7 | 9.55 |
| 6 Arith. mean, 1950 | 6.3 | 7.55 | 8.4 | 9.2 | 7.65 | 7.0 | 7.7 | 6.9 | 8.8 | 7.3 |
| 7 Change, (6) - (5) | -1.3 | -0.75 | -1.5 | -2.35 | -2.35 | -2.1 | -1.7 | -1.05 | -1.9 | -2.25 |
| 8 Change as deviation from line 7, col. 7 | +0.4 | +0.95 | +0.2 | -0.65 | -0.65 | -0.4 | 0 | +0.65 | -0.2 | -0.55 |
| Share of C | | | | | | | | | | |
| 9 Arith. mean, 1930 | 10.5 | 10.8 | 13.55 | 16.2 | 15.6 | 17.3 | 14.0 | 10.65 | 14.9 | 16.45 |
| 10 Arith. mean, 1950 | 18.8 | 19.5 | 21.0 | 23.45 | 20.6 | 22.1 | 20.9 | 19.15 | 22.2 | 21.35 |
| 11 Change, (10) - (9) | +8.3 | +8.7 | +7.45 | +7.25 | +5.0 | +4.8 | +6.9 | +8.5 | +7.3 | +4.9 |
| 12 Change as deviation from line 11, col. 7 | +1.4 | +1.8 | +0.55 | +0.35 | -1.9 | -2.1 | 0 | +1.6 | +0.4 | -2.0 |

Share of T+C

13 Arith. mean, 1930

| | | | | | | | | | | |
|--|------|------|------|------|------|------|------|-------|-------|-------|
| Share of T+C | | | | | | | | | | |
| 13 Arith. mean, 1930 | 18.1 | 19.1 | 23.4 | 27.8 | 25.6 | 26.3 | 23.4 | 18.6 | 25.6 | 25.95 |
| 14 Arith. mean, 1950 | 25.1 | 27.0 | 29.4 | 32.7 | 28.2 | 29.2 | 28.6 | 26.05 | 31.05 | 28.7 |
| 15 Change, (14) - (13) | +7.0 | +7.9 | +6.0 | +4.9 | +2.6 | +2.9 | +5.2 | +7.45 | +5.45 | +2.75 |
| 16 Change as deviation from line 15, col. 7 | +1.8 | +2.7 | +0.8 | -0.3 | -2.6 | -2.3 | 0 | +2.25 | +0.25 | -2.45 |
| Share of OS | | | | | | | | | | |
| 17 Arith. mean, 1930 | 17.4 | 16.0 | 18.5 | 20.2 | 19.0 | 20.9 | 18.7 | 16.7 | 19.35 | 19.95 |
| 18 Arith. mean, 1950 | 25.5 | 22.8 | 23.6 | 28.1 | 22.1 | 24.5 | 24.4 | 24.15 | 25.85 | 23.3 |
| 19 Change, (18) - (17) | +8.1 | +6.8 | +5.1 | +7.9 | +3.1 | +3.6 | +5.7 | +7.45 | +6.5 | +3.35 |
| 20 Change as deviation from line 19, col. 7 | +2.4 | +1.1 | -0.6 | +2.2 | -2.6 | -2.1 | 0 | +1.75 | +0.8 | -2.35 |

For states included in specific groups see App. Table 15.

For sources see notes to Table 20.

Table 30.

Partition Values and Measures of Dispersion, Distribution of States by Relatives of Income per Worker in Three Major Sectors, Selected Years, 1919-21 to 1950

| | Lowest 3 States (1) | First Quartile (2) | Median (3) | Third Quartile (4) | Highest 3 States (5) | Number of States with Relatives or Ratios Below 1.0 (6) |
|---|---------------------------|--------------------------|---------------|--------------------------|----------------------------|--|
| Distribution by Relative of Income, A Sector | | | | | | |
| 1 1919-21 | 0.63 | 0.76 | 0.83 | 0.96 | 1.11 | 39 |
| 2 1929 | 0.44 | 0.54 | 0.59 | 0.67 | 0.92 | 48 |
| 3 1940 | 0.43 | 0.52 | 0.64 | 0.72 | 0.89 | 48 |
| 4 1950 | 0.53 | 0.69 | 0.84 | 1.06 | 1.35 | 32 |
| Distribution by Relative of Income, M+S Sector | | | | | | |
| 5 1919-21 | 0.96 | 1.01 | 1.05 | 1.12 | 1.27 | 5 |
| 6 1929 | 1.02 | 1.07 | 1.14 | 1.24 | 1.59 | 0 |
| 7 1940 | 1.01 | 1.05 | 1.10 | 1.17 | 1.43 | 0 |
| 8 1950 | 0.91 | 1.00 | 1.02 | 1.06 | 1.17 | 11 |
| Distribution by Ratio of Relatives, A/(M+S) | | | | | | |
| 9 1919-21 | 0.53 | 0.66 | 0.76 | 0.94 | 1.15 | 39 |
| 10 1929 | 0.35 | 0.44 | 0.51 | 0.58 | 0.86 | 48 |
| 11 1940 | 0.32 | 0.47 | 0.55 | 0.67 | 0.87 | 48 |
| 12 1950 | 0.48 | 0.64 | 0.81 | 1.07 | 1.45 | 32 |
| Distribution by Relative of Income, M Sector | | | | | | |
| 13 1919-21 | 0.72 | 0.87 | 0.92 | 0.98 | 1.13 | 37 |
| 14 1929 | 0.78 | 0.91 | 1.01 | 1.11 | 1.41 | 20 |
| 15 1940 | 0.80 | 0.90 | 0.96 | 1.05 | 1.23 | 29 |
| 16 1950 | 0.90 | 0.98 | 1.06 | 1.12 | 1.17 | 14 |
| Distribution by Relative of Income, S Sector | | | | | | |
| 17 1919-21 | 0.99 | 1.13 | 1.17 | 1.21 | 1.38 | 2 |
| 18 1929 | 1.04 | 1.14 | 1.21 | 1.36 | 1.70 | 0 |
| 19 1940 | 1.01 | 1.13 | 1.18 | 1.30 | 1.60 | 1 |
| 20 1950 | 0.89 | 0.96 | 1.00 | 1.04 | 1.20 | 21 |
| Distribution by Ratio of Relatives, M/S | | | | | | |
| 21 1929 | 0.60 | 0.75 | 0.82 | 0.88 | 1.14 | 44 |
| 22 1940 | 0.60 | 0.73 | 0.80 | 0.88 | 1.09 | 45 |
| 23 1950 | 0.86 | 0.96 | 1.04 | 1.10 | 1.26 | 16 |

In this and all other tables on income relatives and ratios the entries are unweighted averages of relatives and ratios calculated for individual states. The relatives were derived by dividing the percentage share in participation income by the percentage share in labor force. For the sources of the shares see the notes to Tables 4 and 20.

we have included them for the comparison between the A and M+S sectors; but have omitted them, for reasons already adduced, in the comparison between the M and S sectors themselves.

The conclusions suggested by Table 30 can now be briefly listed. First, income per worker in the A sector is generally below the statewide average. This

was true of 39 of the 48 states in 1919-21, of all the states in 1929 and 1940, but of only 32 states in 1950. While this change reflects the improvement in the relative position of the A sector since World War II, the fact still remains that, by and large, income per worker in the A sector is below the average for the state. This finding is quite similar to that in the international comparisons.

Second, it follows that income per worker in the M+S sector is above the statewide average. This is found fairly generally, with 5 exceptions in 1919-21 and 11 in 1950. The ratio of income per worker in the A sector to income per worker in the M+S sector (what might be called the agricultural--non-agricultural per worker income ratio) is therefore generally below 1. The median ratio ranges from 0.51 to 0.81; and the number of states in which the ratio is below 1.0 ranges from 32 in 1950 to 48 in 1929 and 1940.

Third, the median income per worker for the M sector alone is close to the statewide average, and there is a fairly large proportion of states with relatives below 1 (see lines 13-16). There is a distinct improvement in the position of this sector in 1950, and relatives for 1955, if available, might well show an even more conspicuous improvement. In respect of this closeness of the relative income per worker for the M sector to 1.0, the results for the interstate comparisons are quite similar to the findings in the international comparisons.

Fourth, income per worker in the S sector is, in general, well above the statewide average in all or almost all the forty-eight states (lines 17-20). There is some deterioration in this favored position by 1950, but by and large the results, like those in the international comparisons, show that workers in the S sector enjoy the highest earnings. Because of the pattern of the relatives for the M and S sectors, the median ratio of income per worker in the former to that in the latter is about 0.8 in 1929 and 1940, but in 1950 it is above 1.0. The results for 1929 and 1940, but not those for 1950, are similar to those of the international comparisons.

Before turning to the association between sectoral relatives of income per worker and per capita income, we consider the characteristics of the distributions of these relatives for the few distinguishable major components of the S sector (Table 31). The relatives of income per worker in the transportation and public utility component, as well as in the commerce component--and consequently also in the T+C division--are generally well above 1. The relatives for the OS division, on the other hand, were below 1 in 1929 in as many as 18 states, and in 1950 in the great majority of states (41 out of 48). Income per worker was generally higher in the T+C than in the OS division of the S sector. In this respect also, the findings are in full accord with those for international comparisons.

We come now to a more interesting question: is the intersectoral inequality in income per worker wider in states with high income per capita or in states with low income per capita? The answer is secured by the procedure followed above, viz., by grouping states by descending per capita income, and calculating means--in this case arithmetic means of state relatives for each sector distinguished.

The results, for the three major sectors, appear in Table 32. However, because the estimates for 1919-21 are crude, and because this relative in a year like 1929 or even 1950 is affected by transient elements modifying the position of one sector more than that of another, the evidence must be treated with some caution. With this warning in mind, the following conclusions can be suggested.

First, except in 1929, the relatives of income per worker in the A sector tend to decline from group I to group VI: the lower the per capita income of the

Table 31.

Partition Values and Measures of Dispersion, Distributions of States by Relative Income per Worker in Components of the S Sector, Selected Years, 1929 to 1950

| | Lowest 3 States (1) | First Quartile (2) | Median (3) | Third Quartile (4) | Highest 3 States (5) | Number of States with Relatives or Ratios below 1.0 (6) |
|--|---------------------------|--------------------------|---------------|--------------------------|----------------------------|--|
| Distribution by Relative of Income, T | | | | | | |
| 1 1929 | 0.81 | 0.95 | 1.10 | 1.26 | 1.69 | 17 |
| 2 1940 | 1.03 | 1.17 | 1.30 | 1.47 | 1.88 | 0 |
| 3 1950 | 0.95 | 1.00 | 1.08 | 1.14 | 1.39 | 9 |
| Distribution by Relative of Income, C | | | | | | |
| 4 1929 | 1.24 | 1.41 | 1.55 | 1.76 | 2.50 | 0 |
| 5 1940 | 1.08 | 1.15 | 1.22 | 1.38 | 1.79 | 0 |
| 6 1950 | 0.94 | 1.04 | 1.08 | 1.15 | 1.38 | 4 |
| Distribution by Relative of Income, T+C | | | | | | |
| 7 1929 | 1.09 | 1.25 | 1.32 | 1.54 | 2.16 | 0 |
| 8 1940 | 1.08 | 1.16 | 1.24 | 1.38 | 1.81 | 0 |
| 9 1950 | 0.96 | 1.04 | 1.08 | 1.15 | 1.38 | 5 |
| Distribution by Relative of Income, OS | | | | | | |
| 10 1929 | 0.89 | 0.97 | 1.03 | 1.18 | 1.33 | 18 |
| 11 1940 | 0.88 | 1.03 | 1.11 | 1.20 | 1.48 | 5 |
| 12 1950 | 0.74 | 0.85 | 0.90 | 0.96 | 1.08 | 41 |
| Distribution by Ratio of Relatives, (T+C)/OS | | | | | | |
| 13 1929 | 0.98 | 1.24 | 1.31 | 1.46 | 1.73 | 2 |
| 14 1940 | 0.97 | 1.08 | 1.13 | 1.22 | 1.44 | 6 |
| 15 1950 | 1.01 | 1.16 | 1.23 | 1.30 | 1.43 | 1 |

For sources see notes to Table 30.

state, the lower the relative income per worker in the A sector. This finding is in general agreement with the result of international comparisons, although in the latter the relationship is somewhat more complicated because in some countries the share of the A sector in the labor force is so large as to dominate the picture—a situation not found in the United States within the period covered here.

Second, the relative of income per worker in the M+S sector rises from group I to group VI. This finding, observed in each of the four years in Table 32, agrees closely with that in international comparisons. It follows that the ratio of income per worker in the A sector to that in the M+S sector definitely declines, as we move down the scale of income per capita. In other words, the agricultural-non-agricultural inequality in income per worker is narrower in the high than in the low income states.

Moreover, the range is almost as wide as in the international comparisons. If we exclude 1919-21 for reasons repeatedly indicated, the average ratio for the three years in Table 32 for groups I and II is 0.71, while for groups V and VI it is 0.54, a range of about 1.3 to 1. In Table 16 of the earlier paper, the range (for labor force excluding unpaid family labor) is from 0.88 for the top ten

Table 32.

Arithmetic Means of Relatives of Income per Worker in Three Major Sectors,
Groups of States by Total Income per Capita, Selected Years, 1919-21 to 1950

| | Groups of States by Total Income per Capita | | | | | | Arith. Mean I- | Wider Groups | | |
|---------------------------------------|---|------|------|------|------|------|----------------------|--------------|--------|------|
| | I | II | III | IV | V | VI | VI (Un- weighted) | I+II | III+IV | V+VI |
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) |
| Relative of Income, A Sector | | | | | | | | | | |
| 1 1919-21 | 0.92 | 0.88 | 0.88 | 0.84 | 0.78 | 0.78 | 0.85 | 0.90 | 0.86 | 0.78 |
| 2 1929 | 0.58 | 0.53 | 0.64 | 0.72 | 0.64 | 0.60 | 0.62 | 0.56 | 0.68 | 0.62 |
| 3 1940 | 0.68 | 0.62 | 0.61 | 0.69 | 0.64 | 0.55 | 0.63 | 0.65 | 0.65 | 0.60 |
| 4 1950 | 0.97 | 0.97 | 0.87 | 1.01 | 0.79 | 0.64 | 0.88 | 0.97 | 0.94 | 0.72 |
| Relative of Income, M+S Sector | | | | | | | | | | |
| 5 1919-21 | 1.00 | 1.03 | 1.04 | 1.07 | 1.11 | 1.20 | 1.07 | 1.02 | 1.06 | 1.16 |
| 6 1929 | 1.05 | 1.08 | 1.14 | 1.14 | 1.21 | 1.44 | 1.18 | 1.06 | 1.14 | 1.32 |
| 7 1940 | 1.03 | 1.05 | 1.10 | 1.10 | 1.19 | 1.31 | 1.13 | 1.04 | 1.10 | 1.25 |
| 8 1950 | 1.00 | 0.99 | 1.01 | 0.99 | 1.04 | 1.13 | 1.03 | 1.00 | 1.00 | 1.08 |
| Ratio of Relatives, A/(M+S) | | | | | | | | | | |
| 9 1919-21 | 0.93 | 0.85 | 0.85 | 0.79 | 0.71 | 0.66 | 0.80 | 0.89 | 0.82 | 0.68 |
| 10 1929 | 0.55 | 0.49 | 0.56 | 0.65 | 0.53 | 0.42 | 0.53 | 0.52 | 0.60 | 0.48 |
| 11 1940 | 0.66 | 0.59 | 0.56 | 0.63 | 0.54 | 0.42 | 0.57 | 0.62 | 0.60 | 0.48 |
| 12 1950 | 0.97 | 0.99 | 0.87 | 1.02 | 0.76 | 0.57 | 0.86 | 0.98 | 0.94 | 0.66 |
| Relative of Income, M Sector | | | | | | | | | | |
| 13 1919-21 | 0.88 | 0.89 | 0.91 | 0.90 | 0.95 | 1.05 | 0.93 | 0.88 | 0.90 | 1.00 |
| 14 1929 | 0.95 | 0.97 | 1.06 | 0.97 | 1.01 | 1.20 | 1.03 | 0.96 | 1.02 | 1.10 |
| 15 1940 | 0.94 | 0.95 | 0.96 | 0.92 | 1.03 | 1.07 | 0.98 | 0.94 | 0.94 | 1.05 |
| 16 1950 | 1.05 | 1.03 | 1.06 | 1.01 | 1.05 | 1.10 | 1.05 | 1.04 | 1.04 | 1.08 |
| Relative of Income, S Sector | | | | | | | | | | |
| 17 1919-21 | 1.10 | 1.15 | 1.15 | 1.15 | 1.19 | 1.29 | 1.17 | 1.12 | 1.15 | 1.24 |
| 18 1929 | 1.12 | 1.17 | 1.18 | 1.21 | 1.32 | 1.58 | 1.26 | 1.14 | 1.20 | 1.45 |
| 19 1940 | 1.08 | 1.12 | 1.19 | 1.19 | 1.24 | 1.47 | 1.22 | 1.10 | 1.19 | 1.36 |
| 20 1950 | 0.96 | 0.98 | 0.98 | 0.99 | 1.03 | 1.15 | 1.01 | 0.97 | 0.98 | 1.09 |
| Ratio of Relatives, M/S | | | | | | | | | | |
| 21 1929 | 0.86 | 0.83 | 0.91 | 0.80 | 0.77 | 0.76 | 0.82 | 0.84 | 0.86 | 0.76 |
| 22 1940 | 0.87 | 0.86 | 0.81 | 0.78 | 0.83 | 0.73 | 0.81 | 0.86 | 0.80 | 0.78 |
| 23 1950 | 1.10 | 1.05 | 1.08 | 1.02 | 1.03 | 0.96 | 1.04 | 1.08 | 1.05 | 1.00 |

For states included in specific groups see App. Table 15.

For sources see notes to Table 30.

countries (out of thirty-two) to 0.62 for the lowest fifteen (excluding the erratic ratio for Belgian Congo), a ratio of 1.4 to 1. Since there is no significant association between the share of property in total income and per capita income, and since there is positive association between the share of the S sector in the labor force and per capita income (both in international comparisons), inclusion of property income in international comparisons raises the income per worker in the

S sector (and hence in the M+S sector) relative to that in the A sector, and probably proportionately more in the low than in the high income countries. This would make for a wider range of the A/(M+S) ratio in international than in interstate comparisons. Yet while the range is somewhat wider than for interstate comparisons based on data for three years, it is not wider if we use the data for 1940 and 1950 only in Table 32. The wide range of inequality between income per worker in the agricultural and the non-agricultural parts of the economy in interstate comparisons is surprising and we have no explanation for it.

Third, the relative income per worker in both the M and the S sectors rises as we move from the high to the low income states in each of the four years covered (lines 13-20). But excepting 1919-21, for which period the estimates do not warrant this comparison, the rise is greater for the S sector than for the M sector. It follows that the ratio of income per worker in the M sector to that in the S sector declines from the high to the low income states (lines 21-23). In all three years, the ratios are distinctly lower in groups V and VI than in groups I and II, indicating that intersectoral inequality of income per worker within the non-agricultural part of the economy is narrower for the high and wider for the low income states.

The finding is again in accord with the results for international comparisons (see Table 18 of the earlier paper). In Table 32, the relatives range, on the average, from 0.93 in groups I and II to 0.85 in groups V and VI, a ratio of about 1.1 to 1. In the international comparisons (excluding unpaid family labor) the range is from 1.09 for the top ten countries to 0.76 for the lowest fourteen--a ratio of about 1.4 to 1. Here the international comparisons show a distinctly wider range, but as already indicated the inclusion of property income may tend to raise the per worker income in the S sector unduly, and more so in the underdeveloped than in the more highly developed countries.

We complete this brief cross-section analysis of sectoral levels of income per worker by observing the group means for the major components of the S sector (Table 33). The results are sufficiently uniform to permit a brief and simple summary. For every component distinguished, the relatives rise from group I to group VI. With only one or two exceptions this rise from groups I and II to groups III and IV and further to groups V and VI is true of every component in every year. But the rise in the relative income per worker in the T+C division is uniformly greater than that in the OS division; and, generally, the level of these relatives is higher in T+C than in OS. Consequently the excess of income per worker in the T+C division over that in the OS division, evident in groups I and II, is larger in groups III and IV, and even larger in groups V and VI (lines 13-15). In other words, intersectoral inequality in income per worker within the S sector is greater in the low than in the high income states.

This result is also in accord with what we found in international comparisons. In Table 33 the average relative (for three years) is 1.17 in groups I and II, and 1.31 in groups V and VI, a ratio of 1 to 1.12. In Table 20 of the earlier paper, the average relative for the top eight countries (out of twenty-eight, excluding unpaid family labor) is 1.13 compared with 1.44 for the lowest twelve countries, a ratio of 1 to 1.27. The wider range in international comparisons may be partly or even wholly attributable to the inclusion of property income; but in any case the range in interstate comparisons is wide, in view of the much narrower range of per capita income among the states.

In discussing intersectoral inequality in income per worker in the earlier paper, we used a summary measure of inequality based on a comparison of the

Table 33.

Arithmetic Means of Relatives of Income per Worker in Components of the S Sector,
Groups of States by Total Income per Capita, Selected Years, 1929 to 1950

| | Groups of States by Total Income per Capita | | | | | | Arith. Mean I- VI (Un- weighted) | Wider Groups | | |
|-------------------------------------|---|------|------|------|------|------|---|--------------|--------|------|
| | I | II | III | IV | V | VI | | I+II | III+IV | V+VI |
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) |
| <u>Relative of Income, T</u> | | | | | | | | | | |
| 1 1929 | 0.94 | 0.99 | 1.04 | 1.11 | 1.21 | 1.52 | 1.13 | 0.96 | 1.08 | 1.36 |
| 2 1940 | 1.10 | 1.20 | 1.28 | 1.28 | 1.47 | 1.76 | 1.35 | 1.15 | 1.28 | 1.62 |
| 3 1950 ^a | 1.00 | 1.02 | 1.06 | 1.09 | 1.09 | 1.30 | 1.09 | 1.01 | 1.08 | 1.20 |
| <u>Relative of Income, C</u> | | | | | | | | | | |
| 4 1929 | 1.36 | 1.40 | 1.53 | 1.53 | 1.72 | 2.24 | 1.63 | 1.38 | 1.53 | 1.98 |
| 5 1940 | 1.15 | 1.16 | 1.27 | 1.24 | 1.27 | 1.61 | 1.28 | 1.16 | 1.26 | 1.44 |
| 6 1950 | 1.04 | 1.05 | 1.09 | 1.06 | 1.12 | 1.28 | 1.11 | 1.04 | 1.08 | 1.20 |
| <u>Relative of Income, T+C</u> | | | | | | | | | | |
| 7 1929 | 1.20 | 1.25 | 1.32 | 1.35 | 1.50 | 1.96 | 1.43 | 1.22 | 1.34 | 1.73 |
| 8 1940 | 1.14 | 1.17 | 1.27 | 1.25 | 1.33 | 1.65 | 1.30 | 1.16 | 1.26 | 1.49 |
| 9 1950 | 1.03 | 1.04 | 1.08 | 1.07 | 1.11 | 1.29 | 1.10 | 1.04 | 1.08 | 1.20 |
| <u>Relative of Income, OS</u> | | | | | | | | | | |
| 10 1929 | 1.01 | 1.07 | 0.99 | 1.03 | 1.10 | 1.22 | 1.07 | 1.04 | 1.01 | 1.16 |
| 11 1940 | 1.02 | 1.06 | 1.10 | 1.12 | 1.15 | 1.32 | 1.13 | 1.04 | 1.11 | 1.24 |
| 12 1950 | 0.86 | 0.89 | 0.85 | 0.90 | 0.93 | 1.01 | 0.91 | 0.88 | 0.88 | 0.97 |
| <u>Ratio of Relatives, (T+C)/OS</u> | | | | | | | | | | |
| 13 1929 | 1.20 | 1.18 | 1.34 | 1.31 | 1.38 | 1.60 | 1.34 | 1.19 | 1.32 | 1.49 |
| 14 1940 | 1.13 | 1.12 | 1.15 | 1.12 | 1.16 | 1.26 | 1.16 | 1.12 | 1.14 | 1.21 |
| 15 1950 | 1.20 | 1.18 | 1.28 | 1.19 | 1.21 | 1.28 | 1.22 | 1.19 | 1.24 | 1.24 |

a. The relatives based on labor force excluding government employees are: I-1.09, II-1.11, III-1.11, IV-1.16, V-1.16, and VI-1.43. Since labor force in trade far outweighs labor force in transportation, recalculation of relatives for T+C is not warranted.

For states included in specific groups see App. Table 15.

For sources see notes to Table 30.

percentage distributions of income and labor force among identical sets of industry sectors or subdivisions. By way of summarizing the results of cross-section analysis we present similar measures in Table 34--separately for the A, M, and S classification and for the more detailed classification that distinguishes two divisions within the S sector.

In the light of the findings already stated concerning the movements of the sectoral relatives for the A, M, and S sectors, and the subdivisions of the latter, we would expect the summary measure of inequality to rise markedly as we move from the high to the low income states. And this is indeed what we find--particularly when we deal with the wider groups (columns 8-10). There are, however, some differences in the level of the measure in the successive years. Some of

Table 34.

Measure of Inequality in Sectoral Levels of Income per Worker, Groups of States by Total Income per Capita, Selected Years, 1919-21 to 1950

| | Groups of States by Total Income per Capita | | | | | | Arith. | Wider Groups | | |
|------------------------------------|---|------|------|------|------|------|-------------------------|--------------|--------|-------|
| | I | II | III | IV | V | VI | Mean I-VI (Un-weighted) | I+II | III+IV | V+VI |
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) |
| <u>Based on A, M, and S</u> | | | | | | | | | | |
| 1 1919-21 | 11.6 | 12.2 | 12.5 | 13.3 | 16.8 | 21.3 | 14.6 | 11.9 | 12.9 | 18.05 |
| 2 1929 | 14.0 | 16.7 | 20.6 | 21.1 | 28.4 | 40.8 | 23.6 | 15.35 | 20.85 | 34.6 |
| 3 1940 | 11.2 | 13.2 | 20.5 | 19.2 | 24.7 | 36.4 | 20.9 | 12.2 | 19.85 | 30.55 |
| 4 1950 | 7.2 | 5.2 | 8.9 | 5.0 | 8.2 | 18.6 | 8.8 | 6.2 | 6.95 | 13.4 |
| <u>Based on A, M, T, C, and OS</u> | | | | | | | | | | |
| 5 1929 | 16.6 | 17.7 | 22.7 | 22.3 | 29.2 | 40.8 | 24.9 | 17.15 | 22.5 | 35.0 |
| 6 1940 | 12.2 | 13.9 | 20.5 | 19.4 | 24.8 | 36.4 | 21.2 | 13.05 | 19.95 | 30.6 |
| 7 1950 | 8.9 | 7.9 | 12.6 | 8.3 | 11.7 | 19.4 | 11.5 | 8.4 | 10.45 | 15.55 |

The measure of inequality was derived for each state as the sum, regardless of sign, of the differences between the share in income and the share in labor force of each sector or division. The entries here are unweighted averages of these sums for the states included in each group.

For the states included in specific groups see App. Table 15.

For the sources of the shares see notes to Tables 4 and 20.

these are significant: for example, the decline in the measure, the reduction in intersectoral inequality in income per worker from 1929 to 1940, and particularly from 1940 to 1950, is clearly significant--and is part of the general reduction in the inequality in the size distribution of income. On the other hand, the rise in level, suggesting widening inequality, between 1919-21 and 1929 (lines 1 and 2) may be significant or may have to be qualified because of the incomparabilities between the estimates for the earlier and later years. But these observations relate to what for the present purposes are details. The conclusion to be stressed is that intersectoral inequality in income per worker is consistently wider in the low income states than in the high income states--just as it was found to be wider in the low income nations than in the more developed high income nations.

B. Trends over Time

We measure trends over time in the relative income per worker in the three major sectors for two periods, 1919-21 to 1950 (Table 35) and 1929 to 1950 (Table 36). The advantage in having the longer period is seriously qualified by the crudeness of the estimates for 1919-21; the shorter period extends over only two decades, but the measures are derived from a consistent series of estimates. We, therefore, discuss the two periods together and try to arrive at some conclusions on the basis of both.

In both Tables 35 and 36 the states are again grouped by rates of growth in per capita income, and we find that in 1919-21 and in 1950 relative income per worker in the A sector rises as we move from the states with high rates of growth in per capita income to those with low rates of growth. In 1929, this

association between relative income per worker in the A sector and per capita income growth does not hold.

For both periods, 1919-21 to 1950 and 1929 to 1950, the average relative of income per worker in the A sector rises--by a small fraction for the longer period, and much more appreciably for the shorter. This upward trend is consistent both with the indications of the cross-section analysis here, and with the finding established for international comparisons.

Contrary to expectations, the rise in the relative income per worker in the A sector is not higher for states with higher rates of growth of per capita income, and lower for the states with lower rates of growth of per capita income--either for the longer or for the shorter period. From 1919-21 to 1950, the relative income per worker in the A sector rises most in groups II and VI (Table 35); and from 1929 to 1950, it rises most in groups IV and VI. This finding is puzzling, and we have no ready explanation for it.

Relative income per worker in the M+S sector declines as we pass from group I to group VI, in all three years; and this is as expected. For both periods, the all-state average of relative income per worker in the M+S sector declines--by a small fraction from 1919-21 to 1950, by a much larger fraction from 1929 to 1950. This decline too is what should be expected from cross-section analysis here, and is consistent with the finding in the international comparisons.

In both periods, there is clear positive association between the rate of growth of per capita income and the decline in relative income per worker in the M+S sector. In states with high rates of growth of per capita income, the decline in relative income per worker in the M+S sector is large; in states with low rates of growth the decline is small. This finding is in accordance with our hypothesis, and we would expect a similar result in international comparisons.

It follows that the ratio of income per worker in the A sector to that in the M+S rises, in both the longer and the shorter periods. But there is no regular association between the rise in that ratio and the rate of growth of per capita income.

In both periods the relative income per worker in the M sector alone rises--by an appreciable amount in the longer period and by a smaller amount in the shorter. This is not what we would expect from the cross-section association, but accords with our finding in the international comparisons.

In both periods there was negative association between the rate of growth of per capita income and the rise in relative income per worker in the M sector. In states with high rates of growth in per capita income the rise in relative income per worker in the M sector, if any, was smaller than the all-state average; whereas in states with low rates of growth of per capita income the rise in relative income per worker in the M sector was larger. It may well be that during both periods, the favored position of the M sector in the distribution of income could be more effectively exploited in the high income states, where large-scale enterprise and organization were more developed. But the full answer requires a detailed analysis by subdivisions of the M sector, and even of manufacturing alone. At any rate, this finding is not consistent with the hypothesis that calls for a positive association between rates of growth of per capita income and the change in the relative income per worker.

Table 35.
Changes in Relative Income per Worker in Three Major Sectors and in Inequality, 1919-21 to 1950, Groups of States
by Rise in Total Income per Capita over the Period

| | Groups of States by Rise in Total Income per Capita | | | | | Arith. Mean I-VI (Un- weighted) | Wider Groups | | |
|--|---|-------|-------|-------|-------|---------------------------------------|--------------|--------|-------|
| | I | II | III | IV | V | | I+II | III+IV | V+VI |
| | (1) | (2) | (3) | (4) | (5) | (6) | (8) | (9) | (10) |
| Relative of Income, A Sector | | | | | | | | | |
| 1 Arith. mean, 1919-21 | 0.79 | 0.79 | 0.83 | 0.84 | 0.94 | 0.90 | 0.79 | 0.84 | 0.92 |
| 2 Arith. mean, 1950 | 0.75 | 0.91 | 0.78 | 0.85 | 0.90 | 1.06 | 0.83 | 0.82 | 0.98 |
| 3 Change, (2) - (1) | -0.04 | +0.12 | -0.05 | +0.01 | -0.04 | +0.16 | +0.04 | -0.02 | +0.06 |
| 4 Change as deviation from line 3, col. 7 | -0.07 | +0.09 | -0.08 | -0.02 | -0.07 | +0.13 | +0.01 | -0.05 | +0.03 |
| Relative of Income, M+S Sector | | | | | | | | | |
| 5 Arith. mean, 1919-21 | 1.12 | 1.15 | 1.11 | 1.04 | 1.02 | 1.02 | 1.13 | 1.08 | 1.02 |
| 6 Arith. mean, 1950 | 1.06 | 1.03 | 1.06 | 1.02 | 1.01 | 0.99 | 1.04 | 1.04 | 1.00 |
| 7 Change, (6) - (5) | -0.06 | -0.12 | -0.05 | -0.02 | -0.01 | -0.03 | -0.09 | -0.04 | -0.02 |
| 8 Change as deviation from line 7, col. 7 | -0.01 | -0.07 | 0 | +0.03 | +0.04 | +0.02 | -0.04 | +0.01 | +0.03 |
| Ratio of Relatives, A/(M+S) | | | | | | | | | |
| 9 Arith. mean, 1919-21 | 0.72 | 0.69 | 0.77 | 0.81 | 0.93 | 0.89 | 0.70 | 0.79 | 0.91 |
| 10 Arith. mean, 1950 | 0.72 | 0.92 | 0.74 | 0.84 | 0.89 | 1.07 | 0.82 | 0.79 | 0.98 |
| 11 Change, (10) - (9) | 0 | +0.23 | -0.03 | +0.03 | -0.04 | +0.18 | +0.12 | 0 | +0.07 |
| 12 Change as deviation from line 11, col. 7 | -0.06 | +0.17 | -0.09 | -0.03 | -0.10 | +0.12 | +0.06 | -0.06 | +0.01 |

Relative of Income, M Sector

| | | | | | | | | | | |
|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 12 Change as deviation from line 11, col. 7 | -0.06 | +0.17 | -0.09 | -0.03 | -0.10 | +0.12 | 0 | +0.06 | -0.06 | +0.01 |
| Relative of Income, M Sector | | | | | | | | | | |
| 13 Arith. mean, 1919-21 | 0.96 | 0.99 | 0.98 | 0.87 | 0.90 | 0.88 | 0.93 | 0.98 | 0.92 | 0.89 |
| 14 Arith. mean, 1950 | 1.04 | 1.05 | 1.10 | 1.07 | 1.05 | 0.98 | 1.05 | 1.04 | 1.08 | 1.02 |
| 15 Change, (14) - (13) | +0.08 | +0.06 | +0.12 | +0.20 | +0.15 | +0.10 | +0.12 | +0.06 | +0.16 | +0.13 |
| 16 Change as deviation from line 15, col. 7 | -0.04 | -0.06 | 0 | +0.08 | +0.03 | -0.02 | 0 | -0.06 | +0.04 | +0.01 |
| Relative of Income, S Sector | | | | | | | | | | |
| 17 Arith. mean, 1919-21 | 1.22 | 1.23 | 1.20 | 1.14 | 1.10 | 1.14 | 1.17 | 1.22 | 1.17 | 1.12 |
| 18 Arith. mean, 1950 | 1.07 | 1.02 | 1.02 | 0.98 | 0.99 | 1.00 | 1.01 | 1.04 | 1.00 | 0.99 |
| 19 Change, (18) - (17) | -0.15 | -0.21 | -0.18 | -0.16 | -0.11 | -0.14 | -0.16 | -0.18 | -0.17 | -0.13 |
| 20 Change as deviation from line 19, col. 7 | +0.01 | -0.05 | -0.02 | 0 | +0.05 | +0.02 | 0 | -0.02 | -0.01 | +0.03 |
| Measure of Inequality Based on A, M, and S | | | | | | | | | | |
| 21 Arith. mean, 1919-21 | 17.7 | 17.7 | 17.2 | 12.5 | 9.0 | 13.6 | 14.6 | 17.7 | 14.85 | 11.3 |
| 22 Arith. mean, 1950 | 12.6 | 13.9 | 10.6 | 6.0 | 5.6 | 4.5 | 8.9 | 13.25 | 8.3 | 5.05 |
| 23 Change, (22) - (21) | -5.1 | -3.8 | -6.6 | -6.5 | -3.4 | -9.1 | -5.7 | -4.45 | -6.55 | -6.25 |
| 24 Change as deviation from line 23, col. 7 | +0.6 | +1.9 | -0.9 | -0.8 | +2.3 | -3.4 | 0 | +1.25 | -0.85 | -0.55 |

For states included in specific groups see App. Table 15.

For sources see notes to Tables 30 and 34.

Table 36.
Changes in Relative Income per Worker in Three Major Sectors and in Inequality, 1929 to 1950, Groups of States by
Rise in Total Income per Capita over the Period

| | Groups of States by Rise in Total Income per Capita | | | | | | Arith. Mean I-VI (Un- weighted) | Wider Groups | | |
|--|---|-------|-------|-------|-------|-------|---------------------------------------|--------------|--------|-------|
| | I | II | III | IV | V | VI | | I+II | III+IV | V+VI |
| | | | | | | | | (8) | (9) | (10) |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | | | | |
| Relative of Income, A Sector | | | | | | | | | | |
| 1 Arith. mean, 1929 | 0.67 | 0.62 | 0.67 | 0.61 | 0.56 | 0.57 | 0.62 | 0.64 | 0.64 | 0.56 |
| 2 Arith. mean, 1950 | 0.80 | 0.83 | 0.88 | 0.99 | 0.77 | 0.97 | 0.87 | 0.82 | 0.94 | 0.87 |
| 3 Change, (2) - (1) | +0.13 | +0.21 | +0.21 | +0.38 | +0.21 | +0.40 | +0.25 | +0.18 | +0.30 | +0.31 |
| 4 Change as deviation from line 3, col. 7 | -0.12 | -0.04 | -0.04 | +0.13 | -0.04 | +0.15 | 0 | -0.07 | +0.05 | +0.06 |
| Relative of Income, M+S Sector | | | | | | | | | | |
| 5 Arith. mean, 1929 | 1.28 | 1.37 | 1.14 | 1.14 | 1.08 | 1.05 | 1.18 | 1.32 | 1.14 | 1.06 |
| 6 Arith. mean, 1950 | 1.05 | 1.06 | 1.01 | 1.01 | 1.02 | 1.01 | 1.03 | 1.06 | 1.01 | 1.01 |
| 7 Change, (6) - (5) | -0.23 | -0.31 | -0.13 | -0.13 | -0.06 | -0.04 | -0.15 | -0.26 | -0.13 | -0.05 |
| 8 Change as deviation from line 7, col. 7 | -0.08 | -0.16 | +0.02 | +0.02 | +0.09 | +0.11 | 0 | -0.11 | +0.02 | +0.10 |
| Ratio of Relatives, A/(M+S) | | | | | | | | | | |
| 9 Arith. mean, 1929 | 0.53 | 0.46 | 0.60 | 0.54 | 0.52 | 0.55 | 0.53 | 0.49 | 0.57 | 0.53 |
| 10 Arith. mean, 1950 | 0.77 | 0.81 | 0.89 | 1.00 | 0.75 | 0.97 | 0.86 | 0.79 | 0.94 | 0.86 |
| 11 Change, (10) - (9) | +0.24 | +0.35 | +0.29 | +0.46 | +0.23 | +0.42 | +0.33 | +0.30 | +0.37 | +0.33 |
| 12 Change as deviation from line 11, col. 7 | -0.09 | +0.02 | -0.04 | +0.13 | -0.10 | +0.09 | 0 | -0.03 | +0.04 | 0 |
| Relative of Income, M Sector | | | | | | | | | | |
| 13 Arith. mean, 1929 | 0.98 | 1.21 | 1.02 | 0.98 | 1.01 | 0.96 | 1.03 | 1.09 | 1.00 | 0.98 |
| 14 Arith. mean, 1950 | 1.03 | 1.08 | 1.06 | 1.03 | 1.08 | 1.02 | 1.05 | 1.05 | 1.04 | 1.05 |
| 15 Change, (14) - (13) | +0.05 | -0.13 | +0.04 | +0.05 | +0.07 | +0.06 | +0.02 | -0.04 | +0.04 | +0.07 |
| 16 Change as deviation from line 15, col. 7 | +0.03 | -0.15 | +0.02 | +0.03 | +0.05 | +0.04 | 0 | -0.06 | +0.02 | +0.05 |

Relative of Income, S Sector

| | | | | | | | | | | |
|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 17 Arith. mean, 1929 | 1.43 | 1.45 | 1.21 | 1.22 | 1.13 | 1.13 | 1.26 | 1.44 | 1.22 | 1.13 |
| 18 Arith. mean, 1950 | 1.07 | 1.06 | 0.98 | 1.00 | 0.97 | 1.00 | 1.01 | 1.06 | 0.99 | 0.98 |
| 19 Change, (18) - (17) | -0.36 | -0.39 | -0.23 | -0.22 | -0.16 | -0.13 | -0.25 | -0.38 | -0.23 | -0.15 |
| 20 Change as deviation from line 19, col. 7 | -0.11 | -0.14 | +0.02 | +0.03 | +0.09 | +0.12 | 0 | -0.13 | +0.02 | +0.10 |

Ratio of Relatives, M/S

| | | | | | | | | | | |
|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 21 Arith. mean, 1929 | 0.68 | 0.83 | 0.84 | 0.81 | 0.90 | 0.86 | 0.82 | 0.76 | 0.82 | 0.88 |
| 22 Arith. mean, 1950 | 0.96 | 1.03 | 1.08 | 1.03 | 1.12 | 1.02 | 1.04 | 1.00 | 1.06 | 1.07 |
| 23 Change, (22) - (21) | +0.28 | +0.20 | +0.24 | +0.22 | +0.22 | +0.16 | +0.22 | +0.24 | +0.24 | +0.19 |
| 24 Change as deviation from line 23, col. 7 | +0.06 | -0.02 | +0.02 | 0 | 0 | -0.06 | 0 | +0.02 | +0.02 | -0.03 |

Measure of Inequality Based on A, M, and S

| | | | | | | | | | | |
|---|-------|-------|-------|-------|------|------|-------|-------|-------|-------|
| 25 Arith. mean, 1929 | 32.5 | 36.1 | 22.1 | 21.7 | 15.2 | 13.8 | 23.6 | 34.3 | 21.95 | 14.5 |
| 26 Arith. mean, 1950 | 9.4 | 14.2 | 10.7 | 6.4 | 8.3 | 4.2 | 8.9 | 11.8 | 8.55 | 6.25 |
| 27 Change, (26) - (25) | -23.1 | -21.9 | -11.5 | -15.3 | -6.9 | -9.6 | -14.7 | -22.5 | -13.4 | -8.25 |
| 28 Change as deviation from line 27, col. 7 | -8.4 | -7.2 | +3.2 | -0.6 | +7.8 | +5.1 | 0 | -7.8 | +1.3 | +6.45 |

For states included in specific groups see App. Table 15.

For sources see notes to Tables 30 and 34.

Over both periods, the relative income per worker in the S sector declines, and by substantial fractions. This finding is in accord with cross-section analysis, and parallels the results of the international comparisons. Here we also find the expected positive association between the rate of growth of per capita income and the decline in relative income. In states with high rates of growth of per capita income, relative income per worker in the S sector declines more than in states with low rates of growth.

For the shorter period of 1929-50, we also observe trends in the ratio of income per worker in the M sector to that in the S sector (Table 36, lines 21-24). As we would expect, the ratio rises appreciably--a finding that conforms with the results in the international comparisons. Furthermore, the ratio rises more in states with high rates of growth in per capita income than in states with low rates. This positive association is in accordance with our general hypothesis.

With the usually low relative income per worker in the A sector rising and the usually high relative income per worker in the S sector declining, intersectoral inequality in income per worker should narrow over the period. The overall measures that we calculate (relating to the A, M, and S classification) show this reduction for both the longer and the shorter periods. But there is an interesting difference between the two periods in the character of the association between the rate of growth of per capita income and the decline in intersectoral inequality in per capita income. For the longer period from 1919-21 to 1950 the association is, on the whole, negative: the low income states, with their high rates of growth in income per capita, show a smaller reduction in inequality (which is wider than in the other states) than the high income states with their narrower inequality and low rates of growth in per capita income (Table 35, lines 21-24). By contrast, for the shorter period from 1929 to 1950, the association is positive: the low income states with their high rates of growth of per capita income show a much greater reduction in intersectoral inequality than the high income states with their low rates of growth in per capita income (Table 36, lines 25-28). The difference may well be significant, if we can trust the 1919-21 estimates; and a relevant point is that for 1929 we find much wider intersectoral inequality than for 1919-21. However, we would have to know much more about the annual fluctuations in the measure before we could attempt to interpret the difference. For the present, the main and incontrovertible conclusion is that over both periods intersectoral inequality in income per worker was reduced--a finding that conforms with what we would expect from cross-section analysis here and with what we found in the international comparisons.

For the shorter period, we can observe trends in relative income per worker in several components of the S sector (Table 37). These relatives decline over the period for every component distinguished, most strikingly for the C component and least appreciably for the T component. For both the transportation and the commerce components (and consequently also for the T+C division) we find a positive association between the rate of growth of per capita income and the decline in relative income per worker. The relative income per worker in the T and C components (and the T+C division) declines most in the states in groups I and II, with the highest rates of growth of income per capita. Such positive association can also be observed for the change in the relative income per worker in the OS division, but the range from group I to group VI is not nearly as marked.

Since the relative income per worker in the transportation and commerce division declines appreciably more than the relative income per worker in the other services division, the ratio of the former to the latter declines significantly

over the period. This is again in accordance with the expectation from cross-section analysis, and conforms with our findings in the international comparisons. Furthermore, there is clear positive association between the rate of growth of per capita income and the decline in the ratio of income per worker in the T+C division to that in the OS division.

Because the level of income per worker in the transportation and commerce division is usually higher than that in the other services division, the fall in the ratio of the former to the latter means reduction of intersectoral inequality in income per worker. But curiously enough, the measure of inequality based on distinctions within the S sector (i.e., A, M, T, C, and OS) in Table 37, lines 21-24, does not show as large a reduction as that based on the three major sectors in Table 36, lines 25-28: the all-state average for the former drops from 24.9 in 1929 to 11.5 in 1950, or 13.4 points; for the latter it drops from 23.6 to 8.9, or 14.7 points. The reason is rather intriguing: by 1950, the relative income per worker in the OS division is below, rather than above, 1.0, unlike the relatives for all other components within the S sector and the S sector as a whole. Hence, distinguishing the OS division in 1950 means adding to intersectoral inequality; and it is for this reason that the measure for 1950 in Table 37 (11.5) is so much larger than that in Table 36 (8.9)--whereas in 1929 the difference between the two measures (24.9 and 23.6) is relatively and absolutely smaller. Consequently, the reduction in inequality shown in Table 37, while still substantial, is not as great as that in Table 36, but the former is, nevertheless, the more relevant measure. However, like the change in Table 36, the change in intersectoral inequality in Table 37 shows clear positive association with the rate of growth of income per capita. The low income states, with their high rates of growth of income per capita, show greater reduction in intersectoral inequality in income per worker than the high income states, with their low rates of growth in income per capita.

V. Concluding Comments

In concluding this review of statistical evidence, it may be helpful to restate briefly the broad findings and suggest some of their implications.

A. By and large, the cross-section associations between the shares of industrial sectors and their components in participation income and in the labor force, and the relative sectoral levels of income per worker, on the one hand, and per capita income, on the other, are the same in the interstate comparisons as in the international comparisons in the earlier paper (where total rather than participation income was used). In both sets of comparisons, the association of per capita income with the shares of the A sector in income and labor force was negative; in both the association with the shares of the M sector in income and labor force was positive. In both the association of per capita income with the shares of the S sector was positive but weak, and the range of the shares in response to income was limited; and again in both, the range of the share of the S sector in the labor force was distinctly wider than the range of its share in income. Finally, in both sets of comparisons, the relative income per worker in the A sector tended to be well below 1.0; that for the M sector close to 1.0; and that for the S sector appreciably above 1.0; and within the S sector, that for the transport and commerce division (T+C) distinctly higher than that for private services and governments (OS); and all these intersectoral differences in income per worker were more pronounced for the low than for the high income states and nations.

Table 37.
Changes in Relative Income per Worker in Subdivisions of the S Sector and in Inequality, 1929 to 1950, Groups of States
by Rise in Total Income per Capita over the Period

| | Groups of States by Rise in Total Income per Capita | | | | | | Arith. Mean I-VI (Un- weighted) | Wider Groups | | |
|--|---|-------|-------|-------|-------|-------|---------------------------------------|--------------|--------|-------|
| | I | II | III | IV | V | VI | | I+II | III+IV | V+VI |
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) |
| Relative of Income, T | | | | | | | | | | |
| 1 Arith. mean, 1929 | 1.30 | 1.38 | 1.16 | 1.10 | 0.96 | 0.91 | 1.14 | 1.34 | 1.13 | 0.94 |
| 2 Arith. mean, 1950 | 1.14 | 1.20 | 1.10 | 1.06 | 1.03 | 1.04 | 1.10 | 1.17 | 1.08 | 1.04 |
| 3 Change, (2) - (1) | -0.16 | -0.18 | -0.06 | -0.04 | +0.07 | +0.13 | -0.04 | -0.17 | -0.05 | +0.10 |
| 4 Change as deviation from line 3, col. 7 | -0.12 | -0.14 | -0.02 | 0 | +0.11 | +0.17 | 0 | -0.13 | -0.01 | +0.14 |
| Relative of Income, C | | | | | | | | | | |
| 5 Arith. mean, 1929 | 2.00 | 1.97 | 1.53 | 1.49 | 1.38 | 1.41 | 1.63 | 1.98 | 1.51 | 1.40 |
| 6 Arith. mean, 1950 | 1.17 | 1.17 | 1.06 | 1.07 | 1.06 | 1.10 | 1.10 | 1.17 | 1.06 | 1.08 |
| 7 Change, (6) - (5) | -0.83 | -0.80 | -0.47 | -0.42 | -0.32 | -0.31 | -0.53 | -0.81 | -0.45 | -0.32 |
| 8 Change as deviation from line 7, col. 7 | -0.30 | -0.27 | +0.06 | +0.11 | +0.21 | +0.22 | 0 | -0.28 | +0.08 | +0.21 |
| Relative of Income, T+C | | | | | | | | | | |
| 9 Arith. mean, 1929 | 1.72 | 1.72 | 1.38 | 1.32 | 1.22 | 1.23 | 1.43 | 1.72 | 1.35 | 1.22 |
| 10 Arith. mean, 1950 | 1.17 | 1.18 | 1.07 | 1.07 | 1.05 | 1.08 | 1.10 | 1.17 | 1.07 | 1.06 |
| 11 Change, (10) - (9) | -0.55 | -0.54 | -0.31 | -0.25 | -0.17 | -0.15 | -0.33 | -0.55 | -0.28 | -0.16 |
| 12 Change as deviation from line 11, col. 7 | -0.22 | -0.21 | +0.02 | +0.08 | +0.16 | +0.18 | 0 | -0.22 | +0.05 | +0.17 |

| Relative of Income, OS | | | | | | | | | | | | | |
|---|--|-------|-------|-------|-------|-------|-------|-------|-------|--------|-------|--|--|
| 13 | Arith. mean, 1929 | 1.17 | 1.16 | 1.00 | 1.07 | 1.01 | 1.00 | 1.07 | 1.16 | 1.04 | 1.00 | | |
| 14 | Arith. mean, 1950 | 0.97 | 0.93 | 0.87 | 0.91 | 0.86 | 0.91 | 0.91 | 0.95 | 0.89 | 0.88 | | |
| 15 | Change, (14) - (13) | -0.20 | -0.23 | -0.13 | -0.16 | -0.15 | -0.09 | -0.16 | -0.21 | -0.15 | -0.12 | | |
| 16 | Change as deviation from line 15, col. 7 | -0.04 | -0.07 | +0.03 | 0 | +0.01 | +0.07 | 0 | -0.05 | +0.01 | +0.04 | | |
| Ratio of Relatives, (T+C)/OS | | | | | | | | | | | | | |
| 17 | Arith. mean, 1929 | 1.48 | 1.47 | 1.38 | 1.25 | 1.21 | 1.24 | 1.34 | 1.48 | 1.32 | 1.22 | | |
| 18 | Arith. mean, 1950 | 1.21 | 1.26 | 1.25 | 1.18 | 1.24 | 1.20 | 1.22 | 1.24 | 1.22 | 1.22 | | |
| 19 | Change, (18) - (17) | -0.27 | -0.21 | -0.13 | -0.07 | +0.03 | -0.04 | -0.12 | -0.24 | -0.10 | 0 | | |
| 20 | Change as deviation from line 19, col. 7 | -0.15 | -0.09 | -0.01 | +0.05 | +0.15 | +0.08 | 0 | -0.12 | +0.02 | +0.12 | | |
| Measure of Inequality Based on A, M, T, C, and OS | | | | | | | | | | | | | |
| 21 | Arith. mean, 1929 | 32.9 | 36.4 | 23.8 | 22.2 | 17.2 | 16.9 | 24.9 | 34.65 | 23.0 | 17.05 | | |
| 22 | Arith. mean, 1950 | 11.7 | 15.6 | 13.3 | 10.2 | 10.7 | 7.4 | 11.5 | 13.65 | 11.75 | 9.05 | | |
| 23 | Change, (22) - (21) | -21.2 | -20.8 | -10.5 | -12.0 | -6.5 | -9.5 | -13.4 | -21.0 | -11.25 | -8.0 | | |
| 24 | Change as deviation from line 23, col. 7 | -7.8 | -7.4 | +2.9 | +1.4 | +6.9 | +3.9 | 0 | -7.6 | +2.15 | +5.4 | | |

For states included in specific groups see App. Table 15.

For sources see notes to Tables 30 and 34.

These are the major parallels and we neglect here some of the differences discussed in the text (e. g., in the shares of the transportation component in income and the labor force). These parallel findings are presumably conditioned by the fact that the relationships of income per worker in the three major sectors and their components in the United States are similar to those in the majority of nations in international comparisons. If we had dealt with states or other sub-national units in a country for which this common pattern of intersectoral differences in income per worker was not observed, e. g., Australia or New Zealand, where the relative income per worker in the A sector is above 1.0, the findings would have differed from those in international comparisons. We can, therefore, argue that if the ratios of sectoral incomes per worker to the countrywide income per worker are the same in any one nation as in the majority of nations, cross-section analysis for areas within that nation of the shares of the A, M, and S sectors and their components is likely to show associations with per capita income similar to those in the international comparisons.

B. The range of per capita income among states within this country is far narrower than that among nations--at most 3 to 1 for the six groups of states here, compared with over 10 to 1 for the seven groups of nations distinguished in the earlier paper. Yet the ranges of the shares of the A and M sectors in both income and labor force, and of the S sector in labor force--as well as those of the intersectoral relatives of income per worker are almost as wide as those in the international comparisons. It follows that, by and large, a given unit difference in per capita income is associated with much wider differences in shares of sectors in income and labor force and in intersectoral inequalities in income per worker in interstate than in international comparisons.

One reason for such an association has already been indicated. In a highly developed country like the United States, sectoral differences in absolute levels of income per worker will be limited by mobility of labor and by the penetration of high level technology into all the major segments of the economy. For example, if we assume that in a given country the absolute income per worker in the A sector is $0.5 \bar{a}$, in the M sector $1.0 \bar{a}$, and in the S sector $1.5 \bar{a}$, where \bar{a} is the countrywide average, the largest difference in the shares of the three sectors in income, i. e., between a state with 100% of its labor force in the A sector and another with 100% of its labor force in the S sector, would be associated with a per worker (and hence possibly a per capita) income differential of 3 to 1 (i. e., 1.5 to 0.5). But \bar{a} differs materially among nations, even on the assumption of a uniform industrial structure of the labor force (see Table 23 in the earlier paper). If, then, we also assume that the average income of the country is five times that of another, and the intersectoral inequality of income per worker is the same in both, on the same extreme assumption that in one country 100% of the labor force is employed in the A sector and in the other 100% of the labor force is employed in the S sector, the range of per worker (and hence of per capita) income will be $(5 \bar{a} \times 1.5)$ to $(\bar{a} \times 0.5)$, or 15 to 1--provided that low incomes are associated with large proportions for the A sector and that high incomes are associated with large proportions for the S sector. This stipulation is fully supported by international comparisons, although of course the correlation is less extreme. To put it differently, similar internal differentials in sectoral relatives of per worker income will produce much narrower per capita income differentials within a country than among countries--if the differences among countries in the absolute product per worker within one and the same sector are large, and if the association between the absolute product per worker and the share of the labor force in those sectors with product per worker above the countrywide average is positive.

This association for areas within a country of wide differences in shares of sectors in income and the labor force with narrow per capita income differentials is not likely to be found in the few countries in which intersectoral differences in income per worker do not follow the same pattern as those for the majority of nations. More important, it is not likely to be found in the underdeveloped, low income countries where barriers to internal mobility of resources may be formidable. Here we may find wide differentials within the country in the absolute per worker product even within one sector--and in this respect the situation may be closer to that observed in international comparisons than to that presented in interstate comparisons within this country. If so, the parameters of the function connecting shares of sectors in income and the labor force with a given unit of per capita income differentials may be much smaller than those suggested by interstate comparisons, although perhaps not as small as those in international comparisons.

C. One implication of this finding is important. Among states in this country rather narrow differences in per capita income are associated with large differences in the shares in income (and presumably also in output) of the A and M sectors. Given the generally high absolute income, the narrow differences in per capita income are not likely to produce substantial differences in relative consumer demand for products of the A and M sectors. Hence, the specialization in production, revealed by large interstate differences in the shares of the A and M sectors, necessitates a vast amount of internal transportation and exchange--and the high technological level of these segments of the economy and the free movement of goods within the country are well-known. Such mobility, free from legal and other social barriers, and possible with a low cost, highly efficient transport and distribution system, is a pre-condition of the association of small per capita income differentials with large differences in the shares of the A and M sectors found in interstate comparisons. The contrast with the international situation is patent. There wide differences in the shares of the A and M sectors are associated with much larger per capita income differentials. The latter result in a much greater difference in the relative demand for products of the A and M sectors (and also of some components of the S sector). Consequently, there is a greater consilience between the industrial structure of production and the industrial structure of demand, obviating the need for the unrestricted movement of large volumes of goods across national boundaries, attainable only if the international transport and distribution systems were at least as efficient as the domestic systems in developed countries. Thus, complementing the difference between interstate and international comparisons in the parameters of the functions that connect shares of sectors in the productive system with per capita income differentials, are the differences between interstate and international comparisons in the industrial structures of production and of consumption: coincidence of the latter is far greater within nations than within sub-national units of the developed countries. The proportional magnitude of goods moved from points of production to points of consumption is far greater among states within this country than among nations, and difficulties put in the way of such movement would increase the interstate differentials in per capita income and result in a tendency toward greater state autarchy and a greater consilience between the production and consumption in any one state.

D. In the illustration above we assumed that intersectoral inequality of income per worker was the same for the two states and for the two countries, and equal in both. In fact, the range of intersectoral inequality in income per worker is wide--almost as wide among states as among nations. Since the absolute levels of income per capita in the United States are high, some of the reasons suggested in the earlier paper for wider inequality in low income, underdeveloped nations do not apply to the low income states within this country.

Two considerations with respect to the findings themselves should be noted. First, the range of intersectoral inequality in income per worker among states is wide only in 1919-21 and 1929; in the later years it is far narrower than that prevailing in international comparisons in recent years. Second, as Appendix A shows, the differences among states with respect to relative income per worker in the several sectors are sharply reduced when twelve Southern states with large proportions of Negroes are excluded. This suggests that much of the internal inequality in income per worker in this country is due to the situation of the Negro minority which even today faces social and legal barriers to free mobility and equal opportunity for economic growth.

However, it is still true that rather narrow per capita income differentials among states (and these differentials are also reduced when we exclude the Southern states) are associated with fairly wide differences among states in the extent to which per worker income in the A sector is below or per worker income in the S sector is above the statewide average--and these interstate differences are not much narrower than those in international comparisons (at least in the earlier years in this country). A low income state is thus not much different in this respect from a low income nation, despite the fact that its average income is much higher and opportunities for mobility are presumably much greater.

The full explanation is not clear to me at present, but two arguments may be relevant. Granted that a low income state enjoys greater internal mobility and higher average income than a low income underdeveloped nation, it is part of a rapidly growing country in which marked shifts are occurring in the shares of various sectors within the productive system. One mechanism by which such shifts are effected is, of course, a differential return to labor--and the shifts may be so rapid that the slower moving internal migration processes (particularly from the A to the other sectors) lag behind them. The long-term relative return per worker in the A sector in the United States was well below 1.0 (in fact, between 0.5 and 0.6) for decades, until the shift during World War II and the years that followed.¹⁷ If the intersectoral shifts in demand are so rapid that the supply side continuously lags behind, the relative per capita income of the lagging sectors may be as low, and that of the advancing sectors may be as high, in a state within this country as in international comparisons in which low income, slowly growing underdeveloped economies are juxtaposed with high income, rapidly growing advanced economies.

Second, a high average income in itself may permit a wide relative range--but for different reasons than a low average income. A very low countrywide income per worker may necessitate extremely high relative returns per worker in some sectors (e.g., professional services). Furthermore, in a low income country the relative for the A sector cannot be much below 1.0 because, as is usually the case, the A sector accounts for a large proportion of the labor force and because the countrywide average may be too low to permit survival at levels much below it. When an area's average income is high there is no necessity for minimum incomes in the high level sectors (such as professional services) to be a large multiple of the area-wide average. Also, it is quite feasible for workers in the low level sectors to receive incomes well below the area-wide average, without danger to survival. The range, i.e., the intersectoral inequality, may thus be as wide with a high income base as with a low, depending upon the specific effects of the considerations just noted.

17. See *Income and Wealth, Series II*, International Association for Research in Income and Wealth, Bowes and Bowes, Cambridge [England], 1952, Table 20, p. 110, and the discussion in preceding pages.

E. The trends over time in the shares of the sectors in income and labor force were, in the majority of states, in the same directions as the trends in the majority of countries in the international comparisons. The share of the A sector in both income and the labor force declined appreciably; the share of the M sector in income increased appreciably, but its share in the labor force increased slightly; the share of the S sector in the labor force increased fairly substantially but its share in income only slightly. The similarity to the results in the international comparisons is due, of course, to the fact that the structural pattern of growth within the United States also prevailed in other countries. This is not surprising, since the international comparisons in the earlier paper were for the most part based on long-term trends in developed countries in recent decades. The United States belongs to this family of nations, and the structure for the states naturally reflects the trends prevailing for the country as a whole.

Of more interest is the fact that in the state analysis when an increase in per capita income over time is accompanied by the changes in the shares that are indicated by cross-section correlation, the association between the rate of growth of income per capita and the change in the share of a sector is also clearly positive. For example, the downward trend in the shares of the A sector in income and the labor force is consistent with the negative association in cross-section analysis between its shares and per capita income; and the states in which per capita income grew at the highest rates are those in which the share of the A sector declined most. If, however, the trend over time runs counter to the association suggested by cross-section analysis, the correlation of the rate of growth of per capita income with the changes in the shares tends to be irregular. The same finding applies to trends over time in relative sectoral levels of income per worker.

In other words, the faster the rate of growth of per capita income, the faster the change in industrial structure--provided that the change is in the direction suggested by cross-section analysis. A similar finding but of much narrower scope (referring to the share of the A sector alone) was observed in the international comparison; and if the data for nations were as plentiful as those for states, we might well find the same widespread association there.

We should note that inferences from the interstate comparisons of trends in sectoral shares, or in sectoral levels of income per worker, for international comparisons--including countries in the early phases of industrialization--are dangerous, since the former in this instance refer to a fairly late phase of growth in a highly advanced economy. True, some of the trends observed are a continuation of similar trends that date quite far back but their rates and impacts may not be the same. Some translation to international trends can be made--but only with cautious consideration of the differences in setting. Low income states can be viewed as similar in some respects to low income underdeveloped nations, and trends in the latter can be inferred from trends in the former; but patterns of growth of parts of a highly developed, centrally organized country and of independent political units in a diversified and poorly organized world are hardly similar. One basic difference is that whereas in the United States, the trends in growth of income per capita show convergence among the states, i.e., states with initially low levels of per capita income have profited from much higher rates of growth in per capita income since the 1920's than states with initially high levels of per capita income, no such convergence can be discerned in international comparisons for this period. This basic difference, in and of itself, should bar easy transfer of findings relating to trends over time from the

interstate to the international comparisons--instructive as the findings may be with respect to the role of national organization in the development of different parts of a country.

F. Finally, because of the greater wealth of comparable data for states than for countries, we could distinguish many more industrial subdivisions. We could observe the cross-section associations and trends over time of the shares of mining, manufacturing, and construction within the M sector, and of many detailed subdivisions of the S sector. Many of the findings in the interstate comparisons, both cross-section and over time, are at least plausible suggestions, if not hard and fast inferences, bearing upon international comparisons. Indeed, for this reason the greatest value of this preliminary ordering of state data may be in the additional detail on industrial subdivisions. For it is by revealing these more detailed and hence more meaningful subdivisions of the productive system that attention to the quantitative aspects of economic growth of states or subnational areas within a country may add to our understanding of the economic growth of nations.

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APPENDIX A

EFFECTS OF EXCLUSION OF STATES WITH THE LARGEST PROPORTIONS OF NEGRO POPULATION

Throughout the text we dealt with all forty-eight states, and in twelve, Negroes are a significant proportion of the population. Could the interstate differences--in per capita income, in industrial structure, in intersectoral income inequality--be due to any great extent to the inclusion of these Southern states? Certainly, legal, social, and other obstacles in the path of economic progress have kept the Negro in a lower economic position than the rest of the population. Yet, since the range of differences in many of the comparisons is continuous from the high to the low income states, and not accounted for by just one or two income level groups, it is unlikely that all or even the majority of the interstate differences are due to differences among states in the proportion of Negroes in total population.

Still this proportion does have some effects, and we attempted to evaluate them. For this purpose, we excluded the twelve states with the largest proportions of Negroes. The eleven states excluded in the four years 1919-21, 1929, 1940, and 1950 were Alabama, Arkansas, Florida, Georgia, Louisiana, Maryland, Mississippi, North Carolina, South Carolina, Tennessee, and Virginia. The twelfth state excluded from cross-section analysis was Texas in 1919-21, 1929, and 1940, and Delaware in 1950; but neither state was omitted from the analysis of trends. The proportion of Negroes to total population in these twelve states varied from 16 to 52 percent in 1920, 15 to 50 percent in 1930, 14 to 49 percent in 1940, and 14 to 45 percent in 1950.

We then analyzed the data for the other thirty-six or thirty-seven states, paralleling the procedure used for the forty-eight states. They were divided into six groups by descending order of per capita income for cross-section analysis; and by descending order of rates of growth of income per capita for the trend analysis (in which case we assigned seven states to group III); arithmetic means of the shares of the various sectors and subdivisions in participation income and in the labor force were calculated; and group averages of relatives of income per worker in the various sectors and components were computed. The result was a set of tables analogous to those in the text for states in which the proportion of the Negroes to total population was low. By reducing the proportion of the Negro population we minimized the interstate differences in it; and thus practically eliminated its effects on interstate differences in per capita income, industrial structure, and relatives of sectoral income per worker.

The tables presented below are in a condensed form. All measures of partition values and dispersion are omitted. Some of the tables presenting arithmetic means of shares by groups of states distinguished by income per capita in cross-section analysis show averages for several years instead of separate entries for each year. The tables relating to trends over time are limited to the period 1929 or 1930 to 1950. In all the tables averages or changes for all forty-eight states are also given to facilitate comparison. Rather than discuss separately each of the twelve appendix tables, we list briefly the main results of the exclusion of the states with the largest proportions of

Negroes in population--referring in each finding to the relevant appendix table. For the sake of brevity, the excluded states are designated below as the South.

1. The exclusion of the South raises average per capita income in each year covered; and at the same time reduces its range among the six groups (Appendix Table 1). On the average, the mean income for the states is raised about 10 percent; and the range between groups I and VI is reduced from 2.7 to 1 to 2.1 to 1.

2. For the thirty-six states the share of the A sector in participation income increases markedly as we move from the high to the low income states, the share of the M sector diminishes markedly, and the share of the S sector shows a positive but weak association with per capita income (Appendix Table 2). In all these respects, the results are quite similar to those for the forty-eight states. More important, the range of the shares of the A and M sectors are even wider for the thirty-six states than they are for the forty-eight states (lines 5 and 6, and 11 and 12)--and this despite the fact that the interstate differences in per capita income are narrower. The average range of the share of the S sector from groups I and II to groups V and VI is somewhat narrower for the thirty-six than for the forty-eight states, but since both are quite narrow the difference may not be significant.

3. By and large, the ranges of the shares of the various subdivisions and components of the M and S sectors in participation income are about the same for the thirty-six states, excluding the South, as they are for all forty-eight states (Appendix Table 3). In both we find a negative association between the share of mining and per capita income, but it is more pronounced for the states excluding the South (lines 1 and 2). In both the association between the share of manufacturing and per capita income is positive and pronounced, again more marked for the thirty-six states (lines 3 and 4). In both we find a positive association between the share of construction and per capita income, with about the same range (lines 5 and 6). In both we find a rather irregular association between the share of the transportation and public utility component and per capita income (lines 7 and 8). In both we find a positive but mild association between the share of trade and per capita income (lines 9 and 10), and a more pronounced association for the share of finance (lines 11 and 12). There are similar parallels for the shares of most subdivisions and components of the S sector.

Indeed, the only difference in Appendix Table 3 worth noting relates to the share of the personal and domestic service subdivision (lines 19 and 20). For the forty-eight states the movement of the share from group I to group VI is U-shaped--high in group I, declining to group III, and at its highest in group VI (which is dominated by the Southern states). For the thirty-six states, the peak is in group I, and there is a positive association with per capita income for the three broader groups (col. 8-10). Obviously, it is the South that contributes to the high share of the domestic service division in participation income in the low income states.

4. Trends from 1929 to 1950 in the shares of the three major sectors in participation income are similar for the thirty-six states, excluding the South, and for all forty-eight states (Appendix Table 4, Panels A and B). In both, the share of the A sector declines appreciably, the share of the M sector rises markedly; and the share of the S sector rises but by rather small fractions. Furthermore, in both there is clear positive association between the rate of growth

of per capita income and the changes in the shares of the three major sectors.

5. The same similarity in the changes from 1929 to 1950 can be found in the shares of various subdivisions and components of the M and S sectors when we compare the results for the thirty-seven and for all forty-eight states (Appendix Table 5). The share of mining in participation income declines, on the average, in both sets of states; and in both the association between the decline and the rate of growth of per capita income is irregular (lines 1 and 2). In both the share of manufacturing in participation income rises and the rise is greatest in groups V and VI, with the lowest rates of growth in per capita income (lines 3 and 4). Such similarity of results will be found in almost all the comparisons in Appendix Table 5--even for the share of the personal and domestic service subdivision (lines 19 and 20).

A difference worth mentioning is in the movements of the shares of governments (lines 27-32). The shares of state and local, and particularly of Federal government, rise from 1929 to 1950 more appreciably for all forty-eight states than for the thirty-seven states, excluding the South. Furthermore, the rise for the forty-eight states is particularly great in groups I and II--which is not true of changes in the share in groups I and II for the thirty-seven states. Clearly, the rise of the share of Federal government, and even of state and local, is much more conspicuous in the South than in the rest of the country; and the exclusion of the South has a significant effect upon changes in the shares of government services.

6. The share of the A sector in the labor force rises and those of the M and S sectors decline as we move from the high to the low income states in the distributions for both the thirty-six and the forty-eight states (Appendix Table 6). Furthermore, the range of the shares of the A and M sectors in the labor force in response to per capita income is just as wide for the thirty-six as for the forty-eight states (lines 5 and 6, and 11 and 12)--despite the fact that the range of per capita income among the six groups in the states excluding the South is narrower than among the six groups in the forty-eight states. But in the case of the share of the S sector the range from groups I and II to groups V and VI is distinctly narrower for the thirty-six than for the forty-eight states (lines 17 and 18). In other words, exclusion of the South does reduce the differentials in the share of the S sector in the labor force. The character of the association, however, remains unchanged.

7. The ranges of shares of the various subdivisions of the M sector in the labor force, as we move from high to low income states, are about the same for the states excluding the South as they are for the forty-eight states (Appendix Table 7, lines 1-6). The negative association between the share of mining in the labor force and per capita income is somewhat more pronounced for the thirty-six than for the forty-eight states; and the same is true for the positive association of the share of manufacturing. In contrast, the association of the share of construction with per capita income is reduced when the South is excluded.

Of more interest are the comparisons for the subdivisions and components of the S sector--since Appendix Table 6 indicated that the range in the share of this sector from groups I and II to groups V and VI was reduced perceptibly when the South was excluded. This reduction in range of response--with no change in the character of the association--is observed for the shares of the T and C components, and hence also of the T+C division (lines 7-12). In other words, the

shares of transportation and commerce in the labor force do not drop as much as we move to the low income states when the South is excluded. There is a similar reduction in range in the share of the professional service subdivision in 1930 (lines 17 and 18); but not in the share of the OS division. It follows that in some OS subdivisions the association may be negative (as it is in domestic service, see lines 15 and 16); or if positive, the exclusion of the South does not reduce the range.

8. The changes from 1930 to 1950 in the shares of the three major sectors in the labor force are about the same for the thirty-seven as for the forty-eight states: on the average, the share of the A sector declines quite heavily; that of the M sector rises, but by small fractions; and that of the S sector rises appreciably (Appendix Table 8). Furthermore, for both sets of states, there is clear positive association between the rate of growth of per capita income and the changes in the sectoral shares in labor force.

9. A comparable similarity in changes from 1930 to 1950 is found in the shares of mining and of several components of the S sector for the thirty-seven states excluding the South and for the forty-eight states (Appendix Table 9). In both the average shares of mining and of the transportation component decline, and in both the average shares of commerce and of the OS division rise. In both, there is clear positive association between the rate of growth of per capita income and the rise in the shares of the C component and the OS division. Thus, despite the fact that in cross-section analysis the ranges of the shares of the S sector and, particularly, of the C component are somewhat narrower for the thirty-six than for the forty-eight states, the exclusion of the South has little effect on the comparative trends from 1930 to 1950 in these shares.

10. It is the sectoral levels of income per worker that show a major difference between the thirty-six states, excluding the South, and all forty-eight states (Table 10). The average for the three years of relative income per worker in the A sector is only slightly higher for the thirty-six than for the forty-eight states (0.74 compared with 0.71, lines 4 and 5); and in both it is well below 1. However, the relative for the A sector drops to a trough in groups V and VI (more specifically group VI, dominated by the South) in the grouping of forty-eight states but not in the grouping of thirty-six states, excluding the South. Furthermore, while for both sets of states the relative income per worker in the M+S sector is above 1.0, and rises as we move from high to low income states, the rise is more appreciable for the forty-eight than for the thirty-six states. As a result, the range in the ratio of income per worker in the A sector to that in the M+S sector is distinctly narrower for the thirty-six states (lines 14 and 15, column 7); and for the thirty-six states it is not negatively associated with per capita income, as it appears to be for the forty-eight. The low income states among the thirty-six, excluding the South, do not tend to have lower ratios of income per worker in the A sector to that in the M+S sector than the high income states. This finding is based on averages for three years and is true of 1929 and 1940, if not of 1950. The positive correlation between the A/(M+S) ratio for income per worker and per capita income found for the forty-eight states (and similar to that in international comparisons) is largely due to economic conditions in the South.

By contrast, the inequality between the per worker incomes within the M and S sectors is only slightly lower for the thirty-six than for the forty-eight states; and more important, the positive association of the M/S ratio with income per capita remains, although somewhat attenuated (lines 29 and 30). Thus, even

when the South is excluded, the ratio of income per worker in the M sector to that in the S sector is lower in the low income states--and the association with per capita income is positive, as it is for the forty-eight states and in the international comparisons.

11. The same conclusion applies to income per worker in the various components of the S sector (Appendix Table 11). The relative income per worker for each component in both sets of states is on the average well above 1.0. In both, the relative levels rise as we move from the high to the low income states. Furthermore, in both, the ratio of per worker income in the T+C division to that in the OS division also rises as we move from the high to the low income states, but the range of the ratio, like that of the M/S ratio, is much narrower for the thirty-six than for the forty-eight states. Thus, by and large, the exclusion of the South has its greatest effect in the cross-section analysis not on the shares in participation income and the labor force, but on the intersectoral relatives of income per worker.

12. However, the exclusion of the South has no such effect upon the trends in these sectoral relatives of per capita income (Appendix Table 12). Thus in both sets of states, the relatives for the A sector rise materially from 1929 to 1950; in both, the association with rate of growth of per capita income is irregular (lines 3 and 4); and the two are similar in the trends in the relatives for the M+S sector and in the A/(M+S) ratios, where exclusion of the South hardly affects the direction of the movements and the association with the rate of growth of per capita income (lines 7 and 8, and 11 and 12). The relatives for the M and S sectors also move more or less the same way in the thirty-seven and the forty-eight states, and the M/S ratio rises by the same amount in both, and in positive association with the rate of growth of per capita income (lines 23 and 24). Finally, the relative levels of income per worker for the major components and divisions of the S sector move in the same direction, and on the average, by not too dissimilar amounts in the two sets of states. Most important, the (T+C)/OS ratio declines in both sets and, in both, the higher the rate of growth in per capita income, the greater the decline.

13. Thus, one can say that although exclusion of the South narrows interstate differentials in per capita income, it has little effect upon either the cross-section analysis or the analysis of trends over the period 1930-50. The single major effect of exclusion of the South is to reduce, in cross-section analysis, the range of intersectoral inequality of income per worker in response to per capita income differentials. The inequality between income per worker in the A and the M+S sectors is then no longer associated positively with per capita income; and the ranges of the M/S and the (T+C)/OS ratios become much narrower. A less important effect is the reduction in the ranges of shares of the S sector and the C component. With these and some more minor exceptions, the conclusions found in the analysis for the forty-eight states hold also for the thirty-six states excluding the South.

Appendix Table 1.
Total Income per Capita, 48 States and 36 States, Exclusive of Those with Large Proportions of Negroes, Grouped by
Total Income per Capita, Selected Years, 1919-21 to 1950

| | Arith. Mean 36 States, \$ (Unweighted) | Col. 1 as Relative of Arith. Mean, 48 States (2) | Relatives of Col. 1, for Groups of States by Per Capita Income | | | | | | Ratio of (3) to (8) (9) |
|--|--|--|---|------|------|------|------|------|-------------------------------|
| | | | II | III | IV | V | VI | | |
| | | | (3) | (4) | (5) | (6) | (7) | (8) | |
| 36 States | | | | | | | | | |
| 1 1919-21 | 626 | 1.11 | 1.38 | 1.15 | 1.03 | 0.89 | 0.84 | 0.71 | 1.94 |
| 2 1929 | 687 | 1.11 | 1.48 | 1.22 | 1.00 | 0.89 | 0.81 | 0.61 | 2.43 |
| 3 1940 | 594 | 1.10 | 1.49 | 1.20 | 1.01 | 0.89 | 0.79 | 0.61 | 2.44 |
| 4 1950 | 1,476 | 1.06 | 1.26 | 1.12 | 1.04 | 0.95 | 0.86 | 0.76 | 1.66 |
| 5 Arith. mean, lines 1-4 | | 1.10 | 1.40 | 1.17 | 1.02 | 0.91 | 0.83 | 0.67 | 2.09 (2.12) |
| 6 Arith. mean, same years, 48 states (Table 2) | | 1.00 | 1.51 | 1.21 | 1.03 | 0.92 | 0.75 | 0.57 | 2.65 (2.66) |

Sources are those given in Table 2.

Col. 2 is calculated from col. 1 and Table 2, col. 1.

Col. 9 is calculated directly from col. 3 and 8, except for figures in parentheses which are arithmetic means of ratios in col. 9, or Table 2, col. 8.

Appendix Table 2.

Arithmetic Means of Percentage Shares of Three Major Sectors in Participation Income, 48 States and 36 States, Exclusive of Those with Large Proportions of Negroes, Groups of States by Total Income per Capita, Selected Years, 1919-21 to 1950

| Share of A Sector | Groups of States by Total Income per Capita | | | | | | Arith. Mean I-VI (Un- weighted) | Ratio of I-II to V+VI (8) |
|--|---|------|-------|------|------|-------|---------------------------------------|------------------------------------|
| | I | II | III | IV | V | VI | | |
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
| 1 1919-21, 36 states | 14.6 | 12.5 | 16.25 | 31.8 | 24.1 | 36.5 | 22.6 | 0.45 |
| 2 1929, 36 states | 6.0 | 5.35 | 15.55 | 16.5 | 28.1 | 30.5 | 17.0 | 0.19 |
| 3 1940, 36 states | 5.95 | 4.8 | 13.9 | 13.1 | 23.1 | 24.35 | 14.2 | 0.23 |
| 4 1950, 36 states | 5.8 | 6.9 | 16.9 | 19.3 | 24.3 | 12.5 | 14.3 | 0.35 |
| 5 Arith. mean, lines 1-4 | 8.1 | 7.4 | 15.7 | 20.2 | 24.9 | 26.0 | 17.0 | 0.30 (0.30) |
| 6 Arith. mean, same years, 48 states (Table 5) | 7.5 | 10.5 | 18.3 | 23.0 | 23.4 | 27.45 | 18.4 | 0.35 (0.36) |

Share of M Sector
7 1919-21, 36 states
8 1929, 36 states

33.25 39.4 36.6 25.45 23.6 19.0 29.55 1.70
38.8 42.3 31.5 31.45 20.6 21.55 31.0 1.92

Share of M Sector

| | | | | | | | | |
|---|-------|-------|------|-------|-------|-------|-------|-------------|
| 7 1919-21, 36 states | 33.25 | 39.4 | 36.6 | 25.45 | 23.6 | 19.0 | 29.55 | 1.70 |
| 8 1929, 36 states | 38.8 | 42.3 | 31.5 | 31.45 | 20.6 | 21.55 | 31.0 | 1.92 |
| 9 1940, 36 states | 35.1 | 39.0 | 30.4 | 28.4 | 17.9 | 21.1 | 28.65 | 1.90 |
| 10 1950, 36 states | 36.6 | 41.1 | 34.2 | 25.55 | 22.9 | 35.4 | 32.6 | 1.33 |
| 11 Arith. mean, lines 7-10 | 35.9 | 40.45 | 33.2 | 27.7 | 21.25 | 24.3 | 30.45 | 1.68 (1.71) |
| 12 Arith. mean, same years, 48 states (Table 5) | 36.95 | 36.6 | 30.5 | 21.9 | 24.2 | 24.3 | 29.1 | 1.52 (1.55) |

Share of S Sector

| | | | | | | | | |
|---|-------|------|-------|-------|-------|-------|-------|-------------|
| 13 1919-21, 36 states | 52.15 | 48.1 | 47.1 | 42.8 | 52.35 | 44.5 | 47.8 | 1.04 |
| 14 1929, 36 states | 55.25 | 52.4 | 53.0 | 52.1 | 51.3 | 47.9 | 52.0 | 1.08 |
| 15 1940, 36 states | 59.0 | 56.2 | 55.6 | 58.55 | 59.0 | 54.5 | 57.1 | 1.01 |
| 16 1950, 36 states | 57.6 | 52.0 | 48.9 | 55.1 | 52.8 | 52.15 | 53.1 | 1.04 |
| 17 Arith. mean, lines 13-16 | 56.0 | 52.2 | 51.15 | 52.1 | 53.9 | 49.8 | 52.5 | 1.04 (1.04) |
| 18 Arith. mean, same years, 48 states (Table 5) | 55.55 | 52.9 | 51.2 | 55.0 | 52.45 | 48.2 | 52.55 | 1.08 (1.08) |

For states included in specific groups see App. Table 15.

For figures in parentheses see notes to App. Table 1.

For sources see notes to Table 4.

Appendix Table 3.

Arithmetic Means of Percentage Shares of Subdivisions of the M and S Sectors in Participation Income, 48 States and 36 States, Exclusive of Those with Large Proportions of Negroes, Groups of States by Total Income per Capita, Averages of 1929, 1940, and 1950 Estimates

| | Groups of States by Total Income per Capita | | | | | | Wider Groups | | |
|--|---|------|------|------|------|------|--------------------------------|------|-------------|
| | I | II | III | IV | V | VI | Arith. Mean I-VI (Un-weighted) | I+II | III+IV V+VI |
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) (10) |
| Share of Mining | | | | | | | | | |
| 1 Arith. mean, 1929, 1940, and 1950, 36 states | 1.8 | 2.5 | 3.4 | 2.4 | 4.7 | 8.9 | 3.9 | 2.1 | 2.9 6.8 |
| 2 Arith. mean, same years, 48 states (Table 8) | 2.2 | 2.0 | 2.5 | 4.4 | 7.2 | 2.0 | 3.4 | 2.1 | 3.5 4.6 |
| Share of Manufacturing | | | | | | | | | |
| 3 Arith. mean, 1929, 1940, and 1950, 36 states | 28.9 | 33.2 | 23.7 | 21.0 | 11.3 | 13.1 | 21.9 | 31.1 | 22.4 12.2 |
| 4 Arith. mean, same years, 48 states (Table 8) | 29.6 | 29.2 | 23.4 | 12.6 | 13.4 | 19.6 | 21.3 | 29.4 | 18.0 16.5 |

(Continued on next page)

| Share of Construction | | | | | | | | | | | |
|--|---|------|------|------|------|------|------|------|------|------|------|
| 5 | Arith. mean, 1929, 1940, and 1950, 36 states | 6.1 | 5.1 | 4.9 | 5.1 | 4.5 | 4.1 | 4.9 | 5.8 | 5.0 | 4.3 |
| 6 | Arith. mean, same years, 48 states (Table 8) | 5.8 | 5.5 | 4.8 | 4.9 | 4.4 | 4.2 | 4.9 | 5.7 | 4.9 | 4.3 |
| Share of Transportation and Public Utilities (T) | | | | | | | | | | | |
| 7 | Arith. mean, 1929, 1940, and 1950, 36 states | 8.9 | 8.6 | 9.8 | 9.8 | 9.8 | 9.2 | 9.4 | 8.8 | 9.8 | 9.5 |
| 8 | Arith. mean, same years, 48 states (Table 12) | 9.1 | 9.3 | 9.5 | 9.9 | 9.5 | 7.9 | 9.2 | 9.2 | 9.7 | 8.7 |
| Share of Trade | | | | | | | | | | | |
| 9 | Arith. mean, 1929, 1940, and 1950, 36 states | 19.4 | 18.8 | 18.9 | 20.5 | 19.5 | 17.9 | 19.2 | 19.1 | 19.7 | 18.7 |
| 10 | Arith. mean, same years, 48 states (Table 14) | 19.3 | 18.8 | 19.9 | 19.8 | 18.5 | 17.5 | 19.0 | 19.0 | 19.8 | 18.0 |
| Share of Finance | | | | | | | | | | | |
| 11 | Arith. mean, 1929, 1940, and 1950, 36 states | 5.5 | 4.0 | 3.3 | 3.7 | 3.2 | 2.7 | 3.7 | 4.8 | 3.5 | 2.9 |
| 12 | Arith. mean, same years, 48 states (Table 14) | 5.3 | 3.8 | 3.6 | 3.5 | 3.1 | 2.9 | 3.7 | 4.5 | 3.5 | 3.0 |
| Share of C | | | | | | | | | | | |
| 13 | Arith. mean, 1929, 1940, and 1950, 36 states | 25.0 | 22.9 | 22.1 | 24.3 | 22.6 | 20.6 | 22.9 | 23.9 | 23.2 | 21.6 |
| 14 | Arith. mean, same years, 48 states (Table 12) | 24.5 | 22.7 | 23.4 | 23.3 | 21.5 | 20.4 | 22.6 | 23.6 | 23.3 | 20.9 |
| Share of T+C | | | | | | | | | | | |
| 15 | Arith. mean, 1929, 1940, and 1950, 36 states | 33.9 | 31.5 | 31.9 | 34.1 | 32.4 | 29.8 | 32.3 | 32.7 | 33.0 | 31.1 |
| 16 | Arith. mean, same years, 48 states (Table 12) | 33.6 | 31.9 | 33.0 | 33.2 | 31.0 | 28.2 | 31.8 | 32.8 | 33.1 | 29.6 |
| Share of Hotels and Amusements | | | | | | | | | | | |
| 17 | Arith. mean, 1929, 1940, and 1950, 36 states | 2.8 | 1.7 | 1.7 | 1.6 | 1.5 | 1.3 | 1.8 | 2.2 | 1.7 | 1.4 |
| 18 | Arith. mean, same years, 48 states (Table 14) | 2.7 | 1.6 | 1.6 | 1.8 | 1.4 | 1.1 | 1.7 | 2.1 | 1.7 | 1.2 |
| Share of Personal and Domestic Service | | | | | | | | | | | |
| 19 | Arith. mean, 1929, 1940, and 1950, 36 states | 3.9 | 3.3 | 2.8 | 3.2 | 2.6 | 2.9 | 3.1 | 3.6 | 3.0 | 2.8 |
| 20 | Arith. mean, same years, 48 states (Table 14) | 3.8 | 3.3 | 3.0 | 3.3 | 3.4 | 4.7 | 3.6 | 3.6 | 3.1 | 4.0 |

Share of Business and Repair Service
 21 Arith. mean, 1929, 1940, and 1950, 36 states
 22

Share of Business and Repair Service

21 Arith. mean, 1929, 1940, and 1950, 36 states 1.5 1.2 1.1 0.9 1.0 1.0 1.1 1.3 1.0 1.0
 22 Arith. mean, same years, 48 states (Table 14) 1.4 1.1 0.9 1.1 1.0 0.6 1.0 1.3 1.0 0.8

Share of Professional and Related Services

23 Arith. mean, 1929, 1940, and 1950, 36 states 5.4 5.0 4.6 5.0 4.8 4.4 4.9 5.2 4.8 4.6
 24 Arith. mean, same years, 48 states (Table 14) 5.3 4.9 4.9 4.9 4.6 4.1 4.8 5.1 4.9 4.3

Share of Private Services (PS)

25 Arith. mean, 1929, 1940, and 1950, 36 states 13.6 11.1 10.1 10.7 10.0 9.5 10.8 12.4 10.4 9.7
 26 Arith. mean, same years, 48 states (Table 12) 13.3 10.8 10.4 11.1 10.2 10.4 11.0 12.1 10.7 10.3

Share of State and Local Government

27 Arith. mean, 1929, 1940, and 1950, 36 states 6.0 6.0 6.1 5.9 6.5 6.0 6.1 6.0 6.0 6.2
 28 Arith. mean, same years, 48 states (Table 14) 6.0 5.9 6.0 6.4 6.1 5.4 6.0 5.9 6.2 5.7

Share of Federal Government

29 Arith. mean, 1929, 1940, and 1950, 36 states 3.7 5.0 4.3 4.6 5.4 6.2 4.9 4.3 4.5 5.8
 30 Arith. mean, same years, 48 states (Table 14) 3.7 5.8 4.1 6.2 6.6 6.5 5.5 4.7 5.2 6.6

Share of Government (G)

31 Arith. mean, 1929, 1940, and 1950, 36 states 9.7 10.9 10.5 10.4 11.9 12.2 10.9 10.3 10.5 12.1
 32 Arith. mean, same years, 48 states (Table 12) 9.7 11.6 10.1 12.6 12.7 11.8 11.4 10.6 11.4 12.2

Share of OS

33 Arith. mean, 1929, 1940, and 1950, 36 states 23.4 22.1 20.6 21.2 21.9 21.7 21.8 22.7 20.9 21.8
 34 Arith. mean, same years, 48 states (Table 12) 23.0 22.5 20.5 23.7 22.9 22.2 22.5 22.7 22.1 22.6

For states included in specific groups see App. Table 15.

For sources see notes to Table 4, except for lines 17-24 which are based on unpublished data kindly supplied by Charles F. Schwartz of the Office of Business Economics.

Appendix Table 4.
Changes in Percentage Shares of Three Major Sectors in Participation Income, 1929 to 1950, 48 States and 37 States,
Exclusive of Those with Large Proportions of Negroes, Groups of States by Rise in Total Income per Capita over the
Period

| | Groups of States by Rise in Total Income per Capita | | | | | | Arith. Mean I- VI (Un- weighted) | Wider Groups | | |
|---|---|-------|-------|-------|-------|-------|---|--------------|--------|-------|
| | I | II | III | IV | V | VI | | I+II | III+IV | V+VI |
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) |
| A. 48 States | | | | | | | | | | |
| Changes in Per Capita Income | | | | | | | | | | |
| 1 Arith. mean (unweighted), 1929 (\$) | 383 | 417 | 536 | 666 | 795 | 905 | 617 | 400 | 601 | 850 |
| 2 Arith. mean (unweighted), 1950 (\$) | 1,138 | 1,093 | 1,317 | 1,510 | 1,632 | 1,659 | 1,392 | 1,115 | 1,413 | 1,645 |
| 3 % change, (2) over (1) | +197 | +162 | +146 | +127 | +105 | +83 | +126 | +179 | +135 | +94 |
| Share of A Sector | | | | | | | | | | |
| 4 Arith. mean, 1929 | 31.0 | 29.0 | 22.7 | 15.75 | 8.6 | 6.45 | 18.9 | 30.0 | 19.2 | 7.5 |
| 5 Arith. mean, 1950 | 21.0 | 22.1 | 18.0 | 13.4 | 6.0 | 5.3 | 14.3 | 21.55 | 15.7 | 5.65 |
| 6 Change, (5) - (4) | -10.0 | -6.9 | -4.7 | -2.35 | -2.6 | -1.15 | -4.6 | -8.45 | -3.5 | -1.85 |
| 7 Change as deviation from line 6, col. 7 | -5.4 | -2.3 | -0.1 | +2.25 | +2.0 | +3.45 | 0 | -3.85 | +1.1 | +2.75 |
| Share of M Sector | | | | | | | | | | |
| 8 Arith. mean, 1929 | 18.6 | 21.3 | 26.7 | 25.8 | 41.0 | 40.4 | 29.0 | 19.95 | 26.25 | 40.7 |
| 9 Arith. mean, 1950 | 25.2 | 25.8 | 29.8 | 26.1 | 45.3 | 41.0 | 32.2 | 25.5 | 27.95 | 43.15 |
| 10 Change, (9) - (8) | +6.6 | +4.5 | +3.1 | +0.3 | +4.3 | +0.6 | +3.2 | +5.55 | +1.7 | +2.45 |
| 11 Change as deviation from line 10, col. 7 | +3.4 | +1.3 | -0.1 | -2.9 | +1.1 | -2.6 | 0 | +2.35 | -1.5 | -0.75 |
| Share of S Sector | | | | | | | | | | |
| 12 Arith. mean, 1929 | 50.5 | 49.7 | 50.6 | 58.4 | 50.4 | 53.2 | 52.1 | 50.1 | 54.5 | 51.8 |
| 13 Arith. mean, 1950 | 53.8 | 52.1 | 52.2 | 60.5 | 48.7 | 53.7 | 53.5 | 52.95 | 56.35 | 51.2 |
| 14 Change, (13) - (12) | +3.3 | +2.4 | +1.6 | +2.1 | -1.7 | +0.5 | +1.4 | +2.85 | +1.85 | -0.6 |
| 15 Change as deviation from line 14, col. 7 | +1.9 | +1.0 | +0.2 | +0.7 | -3.1 | -0.9 | 0 | +1.45 | +0.45 | -2.0 |

B. 37 States

Change in Per Capita Income

| | | | | | | | | | | | |
|---|-------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1 | Arith. mean (unweighted), 1929 (\$) | 468 | 521 | 606 | 785 | 789 | 932 | 684 | 494 | 696 | 860 |
| 2 | Arith. mean (unweighted), 1950 (\$) | 1,326 | 1,301 | 1,414 | 1,702 | 1,550 | 1,688 | 1,497 | 1,314 | 1,558 | 1,619 |
| 3 | % change, (2) over (1) | +183 | +150 | +133 | +117 | +96 | +81 | +119 | +166 | +124 | +88 |

Share of A Sector

| | | | | | | | | | | | |
|---|---|-------|-------|------|------|-------|------|------|------|-------|------|
| 4 | Arith. mean, 1929 | 32.45 | 28.0 | 16.8 | 12.6 | 6.75 | 6.6 | 17.2 | 30.2 | 14.7 | 6.7 |
| 5 | Arith. mean, 1950 | 28.5 | 22.15 | 12.7 | 11.0 | 5.4 | 5.2 | 14.2 | 25.3 | 11.85 | 5.3 |
| 6 | Change, (5) - (4) | -3.95 | -5.85 | -4.1 | -1.6 | -1.35 | -1.4 | -3.0 | -4.9 | -2.85 | -1.4 |
| 7 | Change as deviation from line 6, col. 7 | -0.95 | -2.85 | -1.1 | +1.4 | +1.65 | +1.6 | 0 | -1.9 | +0.15 | +1.6 |

Share of M Sector

| | | | | | | | | | | | |
|----|--|------|------|------|-------|------|-------|------|-------|------|------|
| 8 | Arith. mean, 1929 | 15.4 | 23.8 | 28.2 | 35.35 | 42.3 | 39.65 | 30.8 | 19.6 | 31.8 | 41.0 |
| 9 | Arith. mean, 1950 | 19.1 | 27.6 | 31.4 | 35.15 | 45.1 | 40.25 | 33.1 | 23.35 | 33.3 | 42.7 |
| 10 | Change, (9) - (8) | +3.7 | +3.8 | +3.2 | -0.2 | +2.8 | +0.6 | +2.3 | +3.75 | +1.5 | +1.7 |
| 11 | Change as deviation from line 10, col. 7 | +1.4 | +1.5 | +0.9 | -2.5 | +0.5 | -1.7 | 0 | +1.45 | -0.8 | -0.6 |

Share of S Sector

| | | | | | | | | | | | |
|----|--|------|------|------|------|-------|------|------|-------|-------|-------|
| 12 | Arith. mean, 1929 | 52.1 | 48.2 | 55.0 | 52.0 | 50.95 | 53.8 | 52.0 | 50.15 | 53.5 | 52.4 |
| 13 | Arith. mean, 1950 | 52.4 | 50.2 | 55.9 | 53.8 | 49.5 | 54.6 | 52.7 | 51.3 | 54.85 | 52.05 |
| 14 | Change, (13) - (12) | +0.3 | +2.0 | +0.9 | +1.8 | -1.45 | +0.8 | +0.7 | +1.15 | +1.35 | -0.35 |
| 15 | Change as deviation from line 14, col. 7 | -0.4 | +1.3 | +0.2 | +1.1 | -2.15 | +0.1 | 0 | +0.45 | +0.65 | -1.05 |

For states included in specific groups see App. Table 15.

For sources see notes (for 1955) to Table 15.

Appendix Table 5.
Changes in Percentage Shares of Subdivisions of the M and S Sectors in Participation Income, 1929 to 1950, 48 States and 37 States, Exclusive of Those with Large Proportions of Negroes, Groups of States by Rise in Total Income per Capita over the Period

| | Groups of States by Rise in Total Income per Capita | | | | | | Arith. Mean I- VI (Un- weighted) | Wider Groups | | |
|---|---|-------|-------|-------|-------|-------|---|--------------|-------|-------|
| | I | II | III | IV | V | VI | | III+IV | V+VI | |
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) |
| <u>Change in Share of Mining</u> | | | | | | | | | | |
| 1 37 states | -1.2 | -1.25 | -1.8 | -4.2 | -0.75 | -0.5 | -1.6 | -1.2 | -3.0 | -0.65 |
| 2 48 states | 0 | -0.7 | -1.5 | -4.0 | -0.55 | -0.45 | -1.2 | -0.35 | -2.75 | -0.5 |
| <u>Change in Share of Manufacturing</u> | | | | | | | | | | |
| 3 37 states | +1.5 | +3.3 | +2.3 | +2.85 | +5.3 | +2.3 | +2.9 | +2.4 | +2.55 | +3.8 |
| 4 48 states | +3.7 | +2.7 | +2.75 | +1.4 | +5.7 | +2.65 | +3.2 | +3.2 | +2.1 | +4.2 |
| <u>Change in Share of Construction</u> | | | | | | | | | | |
| 5 37 states | +3.4 | +1.8 | +2.7 | +1.1 | -1.8 | -1.2 | +1.0 | +2.6 | +1.9 | -1.5 |
| 6 48 states | +2.9 | +2.5 | +2.0 | +2.95 | -0.75 | -1.5 | +1.3 | +2.7 | +2.45 | -1.1 |
| <u>Change in Share of Transportation and Public Utilities (T)</u> | | | | | | | | | | |
| 7 37 states | -2.8 | -1.85 | -2.5 | -2.45 | -1.2 | -1.2 | -2.0 | -2.3 | -2.5 | -1.2 |
| 8 48 states | -2.4 | -2.25 | -2.2 | -2.95 | -1.7 | -1.0 | -2.1 | -2.3 | -2.6 | -1.35 |
| <u>Change in Share of Trade</u> | | | | | | | | | | |
| 9 37 states | +0.95 | +2.85 | +2.4 | +2.25 | +1.7 | +1.9 | +2.0 | +1.9 | +2.3 | +1.8 |
| 10 48 states | +1.9 | +2.65 | +2.7 | +2.15 | +2.0 | +1.9 | +2.2 | +2.3 | +2.4 | +1.95 |
| <u>Change in Share of Finance</u> | | | | | | | | | | |
| 11 37 states | -0.75 | -0.9 | -1.1 | -1.2 | -1.5 | -2.0 | -1.2 | -0.8 | -1.15 | -1.75 |
| 12 48 states | -0.7 | -0.65 | -1.0 | -1.1 | -1.7 | -1.8 | -1.15 | -0.7 | -1.05 | -1.75 |
| <u>Change in Share of C</u> | | | | | | | | | | |
| 13 37 states | +0.3 | +1.9 | +1.3 | +1.05 | +0.2 | -0.05 | +0.8 | +1.1 | +1.2 | +0.1 |
| 14 48 states | +1.2 | +1.9 | +1.75 | +1.0 | +0.2 | +0.2 | +1.1 | +1.55 | +1.4 | +0.2 |
| <u>Change in Share of T+C</u> | | | | | | | | | | |
| 15 37 states | -2.5 | +0.1 | -1.2 | -1.4 | -1.05 | -1.2 | -1.2 | -1.2 | -1.3 | -1.1 |
| 16 48 states | -1.2 | -0.2 | -0.4 | -1.9 | -1.5 | -0.9 | -1.0 | -0.7 | -1.15 | -1.2 |

Change in Share of Hotels and Amusements

| | | | | | | | | | | |
|--------------|------|------|------|------|-------|------|-------|-------|-------|------|
| 17 37 states | -0.6 | -0.3 | -0.6 | +0.5 | -0.85 | -0.6 | -0.4 | -0.45 | -0.05 | -0.7 |
| 18 48 states | -0.4 | -0.3 | -0.4 | -0.1 | -0.7 | -0.7 | -0.45 | -0.35 | -0.25 | -0.7 |

Change in Share of Personal and Domestic Services

| | | | | | | | | | | |
|--------------|------|------|-------|------|------|------|------|-------|-------|-------|
| 19 37 states | -1.0 | -1.0 | -1.2 | -1.1 | -1.6 | -1.9 | -1.3 | -1.0 | -1.15 | -1.75 |
| 20 48 states | -2.0 | -1.3 | -1.25 | -1.0 | -1.8 | -1.8 | -1.5 | -1.65 | -1.1 | -1.8 |

Change in Share of Business and Repair Services

| | | | | | | | | | | |
|--------------|-------|------|------|-------|-------|------|------|------|------|------|
| 21 37 states | +0.25 | +0.1 | -0.2 | +0.05 | +0.4 | +0.4 | +0.2 | +0.2 | -0.1 | +0.4 |
| 22 48 states | +0.2 | 0 | 0 | -0.05 | +0.15 | +0.4 | +0.1 | +0.1 | 0 | +0.3 |

Change in Share of Professional and Related Services

| | | | | | | | | | | |
|--------------|-------|------|-------|------|------|------|------|------|-------|-------|
| 23 37 states | +0.2 | 0 | +0.1 | 0 | -0.2 | +0.4 | +0.1 | +0.1 | +0.05 | +0.1 |
| 24 48 states | +0.05 | +0.3 | -0.35 | +0.1 | -0.4 | +0.3 | 0 | +0.2 | -0.2 | -0.35 |

Change in Share of Private Services (PS)

| | | | | | | | | | | |
|--------------|------|-------|------|------|------|-------|------|-------|-------|------|
| 25 37 states | -1.1 | -1.25 | -1.7 | -0.5 | -2.2 | -1.85 | -1.5 | -1.2 | -1.1 | -2.0 |
| 26 48 states | -2.2 | -1.3 | -1.9 | -1.0 | -2.5 | -1.85 | -1.8 | -1.75 | -1.45 | -2.2 |

Change in Share of State and Local Government

| | | | | | | | | | | |
|--------------|------|-------|------|------|------|------|------|-------|-------|------|
| 27 37 states | +0.5 | +0.35 | +0.2 | +0.3 | -0.1 | +0.7 | +0.3 | +0.4 | +0.25 | +0.3 |
| 28 48 states | +0.5 | +0.8 | +0.4 | +0.3 | -0.2 | +0.6 | +0.4 | +0.65 | +0.35 | +0.2 |

Change in Share of Federal Government

| | | | | | | | | | | |
|--------------|-------|-------|-------|-------|------|------|------|------|------|-------|
| 29 37 states | +3.35 | +2.85 | +3.8 | +3.35 | +2.0 | +3.1 | +3.1 | +3.1 | +3.6 | +2.55 |
| 30 48 states | +6.2 | +3.2 | +3.45 | +4.7 | +2.5 | +2.7 | +3.8 | +4.7 | +4.1 | +2.6 |

Change in Share of Government (G)

| | | | | | | | | | | |
|--------------|------|------|------|------|------|------|-------|-------|-------|-------|
| 31 37 states | +3.9 | +3.2 | +4.0 | +3.7 | +1.9 | +3.8 | +3.4 | +3.55 | +3.85 | +2.85 |
| 32 48 states | +6.7 | +4.0 | +3.9 | +4.9 | +2.3 | +3.3 | +4.15 | +5.35 | +4.4 | +2.8 |

Change in Share of OS

| | | | | | | | | | | |
|--------------|-------|-------|------|-------|-------|------|------|------|-------|-------|
| 33 37 states | +2.8 | +1.95 | +2.2 | +3.15 | -0.3 | +2.0 | +2.0 | +2.4 | +2.7 | +0.85 |
| 34 48 states | +4.55 | +2.7 | +2.0 | +4.1 | -0.25 | +1.4 | +2.5 | +3.6 | +3.05 | +0.6 |

For states included in specific groups see App. Table 15.
For sources see notes to Table 13.

Appendix Table 6.
Arithmetic Means of Percentage Shares of Three Major Sectors in Labor Force, 48 States and 36 States, Exclusive of Those with Large Proportions of Negroes, Groups of States by Total Income per Capita, Selected Years, 1920 to 1950

| | Groups of States by Total Income per Capita | | | | | | Arith. Mean I-VI (Un- weighted) | Ratio of I+II to V+VI (8) |
|--|---|-------|-------|-------|-------|-------|---------------------------------------|------------------------------------|
| | I | II | III | IV | V | VI | | |
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | |
| Share of A Sector | | | | | | | | |
| 1 1920, 36 states | 13.9 | 13.45 | 19.7 | 33.5 | 30.4 | 42.4 | 25.6 | 0.38 |
| 2 1930, 36 states | 9.9 | 10.3 | 25.1 | 27.9 | 34.6 | 42.75 | 25.1 | 0.26 |
| 3 1940, 36 states | 8.3 | 8.4 | 19.7 | 21.5 | 30.0 | 36.1 | 20.7 | 0.25 |
| 4 1950, 36 states | 5.2 | 7.5 | 16.7 | 20.1 | 24.0 | 16.85 | 15.1 | 0.31 |
| 5 Arith. mean, lines 1-4 | 9.3 | 9.9 | 20.3 | 25.75 | 29.75 | 34.5 | 21.6 | 0.30 (0.30) |
| 6 Arith. mean, same years, 48 states (Table 21) | 9.2 | 13.55 | 23.8 | 28.3 | 32.3 | 41.9 | 24.8 | 0.31 (0.31) |
| Share of M Sector | | | | | | | | |
| 7 1920, 36 states | 38.0 | 44.6 | 39.3 | 28.5 | 24.9 | 19.15 | 32.4 | 1.88 |
| 8 1930, 36 states | 39.4 | 45.1 | 30.05 | 29.3 | 21.15 | 20.8 | 31.0 | 2.01 |
| 9 1940, 36 states | 36.7 | 41.4 | 32.7 | 29.0 | 19.4 | 21.3 | 30.1 | 1.92 |
| 10 1950, 36 states | 35.8 | 39.05 | 32.2 | 23.9 | 23.0 | 32.5 | 31.1 | 1.35 |
| 11 Arith. mean, lines 7-10 | 37.5 | 42.5 | 33.6 | 27.7 | 22.1 | 23.4 | 31.1 | 1.76 (1.79) |
| 12 Arith. mean, same years, 48 states (Table 21) | 38.55 | 38.2 | 30.5 | 22.9 | 23.5 | 22.2 | 29.3 | 1.69 (1.72) |
| Share of S Sector | | | | | | | | |
| 13 1920, 36 states | 48.1 | 41.9 | 41.0 | 37.9 | 44.7 | 38.4 | 42.0 | 1.08 |
| 14 1930, 36 states | 50.7 | 44.6 | 44.8 | 42.8 | 44.3 | 36.45 | 44.0 | 1.18 |
| 15 1940, 36 states | 54.9 | 50.2 | 47.6 | 49.5 | 50.7 | 42.7 | 49.3 | 1.13 |
| 16 1950, 36 states | 59.1 | 53.5 | 51.1 | 56.0 | 53.1 | 50.7 | 53.9 | 1.08 |
| 17 Arith. mean, lines 13-16 | 53.2 | 47.55 | 46.1 | 46.55 | 48.2 | 42.1 | 47.2 | 1.12 (1.12) |
| 18 Arith. mean, same years, 48 states (Table 21) | 52.25 | 48.2 | 45.7 | 48.8 | 44.3 | 35.9 | 45.9 | 1.25 (1.26) |

For states included in specific groups see App. Table 15.

For sources see notes to Table 20.

For figures in parentheses see notes to App. Table 1.

Appendix Table 7.
Arithmetic Means of Percentage Shares of Subdivisions of the M and S Sectors in Labor Force, 48 States and 36 States,
Exclusive of Those with Large Proportions of Negroes, Groups of States by Total Income per Capita, Averages of 1930,
1940, and 1950 Estimates

| | Groups of States by Total Income per Capita | | | | | | Arith. Mean I- VI (Un- weighted) (7) | Wider Groups | | |
|--|---|------|-------|-------|-------|-------|--|--------------|--------|-------|
| | I | II | III | IV | V | VI | | I+II | III+IV | V+VI |
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) |
| Share of Mining | | | | | | | | | | |
| 1 Arith. mean, 1930, 1940, and 1950, 36 states | 1.8 | 2.4 | 2.9 | 2.0 | 3.6 | 7.1 | 3.3 | 2.1 | 2.45 | 5.35 |
| 2 Arith. mean, same years, 48 states (Table 24) | 2.05 | 2.1 | 2.1 | 3.3 | 5.5 | 1.5 | 2.8 | 2.1 | 2.7 | 3.5 |
| Share of Manufacturing | | | | | | | | | | |
| 3 Arith. mean, 1940 and 1950, 36 states | 27.2 | 32.7 | 23.15 | 18.45 | 11.35 | 13.55 | 21.1 | 29.95 | 20.8 | 12.45 |
| 4 Arith. mean, same years, 48 states (Table 24) | 29.2 | 26.8 | 22.4 | 13.35 | 12.9 | 18.9 | 20.6 | 28.0 | 17.9 | 15.9 |
| Share of Construction | | | | | | | | | | |
| 5 Arith. mean, 1940 and 1950, 36 states | 6.85 | 6.2 | 6.35 | 6.35 | 6.7 | 6.3 | 6.5 | 6.5 | 6.35 | 6.5 |
| 6 Arith. mean, same years, 48 states (Table 24) | 6.7 | 6.7 | 6.0 | 7.0 | 6.4 | 5.25 | 6.3 | 6.7 | 6.5 | 5.8 |
| Share of T | | | | | | | | | | |
| 7 Arith. mean, 1930, 1940, and 1950, 36 states | 9.0 | 8.3 | 8.9 | 8.65 | 8.7 | 7.4 | 8.5 | 8.65 | 8.8 | 6.5 |
| 8 Arith. mean, same years, 48 states (Table 26) | 9.0 | 8.6 | 8.5 | 8.7 | 7.7 | 5.3 | 8.0 | 8.8 | 8.6 | 8.5 |
| Share of C | | | | | | | | | | |
| 9 Arith. mean, 1930, 1940, and 1950, 36 states | 21.5 | 19.3 | 18.1 | 19.0 | 18.8 | 15.5 | 18.7 | 20.4 | 18.55 | 17.15 |
| 10 Arith. mean, same years, 48 states (Table 26) | 20.95 | 19.1 | 18.6 | 18.8 | 16.3 | 12.8 | 17.8 | 20.0 | 18.7 | 14.55 |
| Share of T+C | | | | | | | | | | |
| 11 Arith. mean, 1930, 1940, and 1950, 36 states | 30.5 | 27.6 | 26.95 | 27.6 | 27.5 | 22.9 | 27.2 | 29.05 | 27.3 | 25.2 |
| 12 Arith. mean, same years, 48 states (Table 26) | 30.0 | 27.7 | 27.1 | 27.5 | 24.0 | 18.05 | 25.7 | 28.85 | 27.3 | 21.0 |
| Share of OS | | | | | | | | | | |
| 13 Arith. mean, 1930, 1940, and 1950, 36 states | 24.4 | 21.9 | 20.9 | 21.8 | 21.8 | 20.4 | 21.9 | 23.15 | 21.35 | 21.1 |
| 14 Arith. mean, same years, 48 states (Table 26) | 23.85 | 22.5 | 20.9 | 23.3 | 21.7 | 19.05 | 21.9 | 23.2 | 22.1 | 20.4 |
| Share of Private Households | | | | | | | | | | |
| 15 Arith. mean, 1940 and 1950, 36 states | 3.1 | 2.5 | 2.5 | 3.25 | 2.5 | 3.25 | 2.85 | 2.8 | 2.9 | 2.9 |
| 16 Arith. mean, same years, 48 states (Table 26) | 3.1 | 2.75 | 2.8 | 3.6 | 3.8 | 5.65 | 3.6 | 2.9 | 3.2 | 4.7 |

(Continued on next page)

Share of Professional and Related Services

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) |
|-------------------------------|-----|-----|------|-----|-----|-----|-----|------|------|------|
| 17 1930, 36 states | 8.0 | 7.3 | 7.95 | 7.3 | 8.3 | 7.1 | 7.7 | 7.65 | 7.6 | 7.7 |
| 18 1930, 48 states (Table 26) | 8.1 | 7.3 | 7.5 | 8.0 | 6.4 | 4.9 | 7.0 | 7.7 | 7.75 | 5.65 |

For states included in specific groups see App. Table 15.

For sources see notes to Table 20.

Appendix Table 8.

Changes in Percentage Shares of Three Major Sectors in Labor Force, 1930 to 1950, 48 States and 37 States, Exclusive of Those with Large Proportions of Negroes, Groups of States by Rise in Total Income per Capita over the Period

| | Groups of States by Rise in Total Income per Capita | | | | | | Arith. Mean I- VI (Un- weighted) | Wider Groups | | |
|---------------------------------|---|--------|--------|-------|-------|-------|---|--------------|--------|-------|
| | I | | II | | III | | | IV | | V+VI |
| | (1) | (2) | (3) | (4) | (5) | (6) | | (7) | (8) | |
| Share of A Sector | | | | | | | | | | |
| 1 Arith. mean, 1930, 37 states | 44.7 | 37.15 | 27.8 | 21.3 | 11.5 | 10.1 | 25.3 | 40.9 | 24.55 | 10.8 |
| 2 Arith. mean, 1950, 37 states | 27.4 | 23.5 | 15.4 | 11.1 | 6.1 | 5.6 | 14.85 | 25.45 | 13.25 | 5.85 |
| 3 Change, (2) - (1) | -17.3 | -13.65 | -12.4 | -10.2 | -5.4 | -4.5 | -10.45 | -15.5 | -11.3 | -4.95 |
| 4 Change, 48 states (Table 28) | -20.8 | -20.3 | -13.1 | -11.7 | -6.8 | -4.85 | -12.9 | -20.55 | -12.4 | -5.85 |
| Share of M Sector | | | | | | | | | | |
| 5 Arith. mean, 1930, 37 states | 15.75 | 22.6 | 27.1 | 33.8 | 43.2 | 41.9 | 30.7 | 19.2 | 30.45 | 42.55 |
| 6 Arith. mean, 1950, 37 states | 18.6 | 25.4 | 28.6 | 32.5 | 43.8 | 39.6 | 31.4 | 22.0 | 30.55 | 41.7 |
| 7 Change, (6) - (5) | +2.85 | +2.3 | +1.5 | -1.3 | +0.6 | -2.3 | +0.7 | +2.8 | +0.1 | -0.85 |
| 8 Change, 48 states (Table 28) | +5.75 | +5.6 | +1.9 | -1.1 | +1.1 | -1.65 | +1.9 | +5.7 | +0.4 | -0.25 |
| Share of S Sector | | | | | | | | | | |
| 9 Arith. mean, 1930, 37 states | 39.6 | 40.25 | 45.1 | 44.9 | 45.3 | 48.0 | 43.9 | 39.9 | 45.0 | 46.65 |
| 10 Arith. mean, 1950, 37 states | 54.0 | 51.1 | 56.0 | 56.3 | 50.15 | 54.8 | 53.7 | 52.55 | 56.15 | 52.5 |
| 11 Change, (10) - (9) | +14.4 | +10.85 | +10.9 | +11.4 | +4.85 | +6.8 | +9.8 | +12.65 | +11.15 | +5.85 |
| 12 Change, 48 states (Table 28) | +15.0 | +14.7 | +11.25 | +12.8 | +5.7 | +6.5 | +11.0 | +14.9 | +12.05 | +6.1 |

For states included in specific groups see App. Table 15.

For sources see notes to Table 20.

Appendix Table 9.

Changes in Percentage Shares of Mining and of Components of the S Sector in Labor Force, 48 States and 37 States, Exclusive of Those with Large Proportions of Negroes, Groups of States by Rise in Total Income per Capita over the Period

| | Groups of States by Rise in Total Income per Capita | | | | | | Arith. | | | |
|----------------------------------|---|-------|-------|-------|-------|-------|-------------------------|-------|--------|-------|
| | I | II | III | IV | V | VI | Mean I-VI (Un-weighted) | I+II | III+IV | V+VI |
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) |
| <u>Change in Share of Mining</u> | | | | | | | | | | |
| 1 37 states | -0.8 | -0.9 | -1.1 | -3.0 | -1.1 | -0.4 | -1.2 | -0.85 | -2.05 | -0.75 |
| 2 48 states (Table 29) | +0.05 | -0.7 | -0.7 | -2.9 | -0.85 | -0.5 | -0.9 | -0.3 | -1.8 | -0.7 |
| <u>Change in Share of T</u> | | | | | | | | | | |
| 3 37 states | -1.7 | -1.4 | -1.6 | -2.7 | -2.3 | -1.9 | -1.9 | -1.55 | -2.15 | -2.1 |
| 4 48 states (Table 29) | -1.3 | -0.75 | -1.5 | -2.35 | -2.35 | -2.1 | -1.7 | -1.05 | -1.9 | -2.25 |
| <u>Change in Share of C</u> | | | | | | | | | | |
| 5 37 states | +8.9 | +7.25 | +7.0 | +6.9 | +4.6 | +4.9 | +6.6 | +8.1 | +6.95 | +4.75 |
| 6 48 states (Table 29) | +8.3 | +8.7 | +7.45 | +7.25 | +5.0 | +4.8 | +6.9 | +8.5 | +7.3 | +4.9 |
| <u>Change in Share of T+C</u> | | | | | | | | | | |
| 7 37 states | +7.2 | +5.9 | +5.3 | +4.15 | +2.25 | +2.85 | +4.6 | +6.55 | +4.7 | +2.55 |
| 8 48 states (Table 29) | +7.0 | +7.9 | +6.0 | +4.9 | +2.6 | +2.9 | +5.2 | +7.45 | +5.45 | +2.75 |
| <u>Change in Share of OS</u> | | | | | | | | | | |
| 9 37 states | +7.15 | +4.9 | +5.5 | +7.25 | +2.5 | +3.8 | +5.2 | +6.0 | +6.4 | +3.15 |
| 10 48 states (Table 29) | +8.1 | +6.8 | +5.1 | +7.9 | +3.1 | +3.6 | +5.7 | +7.45 | +6.5 | +3.35 |

For states included in specific groups see App. Table 15.

For sources see notes to Table 20.

Appendix Table 10.
Arithmetic Means of Relatives of Income per Worker in Three Major Sectors and a Measure of Inequality, 48 States and 36 States, Exclusive of Those with Large Proportions of Negroes, Groups of States by Total Income per Capita, Selected Years, 1929 to 1950

| | Groups of States by Total Income per Capita | | | | | | | | | | Arith. Mean I- VI (Un- weighted) | Wider Groups | | | | | |
|--|---|------|------|------|------|------|------|------|------|------|---|--------------|-----|--------|-----|------|-----|
| | I | | II | | III | | IV | | V | | | I+II | | III+IV | | V+VI | |
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | | (1) | (2) | (3) | (4) | (5) | (6) |
| Relative of Income, A Sector | | | | | | | | | | | | | | | | | |
| 1 1929, 36 states | 0.58 | 0.52 | 0.60 | 0.60 | 0.80 | 0.68 | 0.63 | 0.55 | 0.60 | 0.74 | | | | | | | |
| 2 1940, 36 states | 0.70 | 0.60 | 0.66 | 0.61 | 0.76 | 0.65 | 0.66 | 0.65 | 0.63 | 0.70 | | | | | | | |
| 3 1950, 36 states | 1.06 | 0.93 | 0.92 | 0.94 | 1.00 | 0.76 | 0.93 | 0.99 | 0.93 | 0.88 | | | | | | | |
| 4 Arith. mean, lines 1-3 | 0.78 | 0.68 | 0.73 | 0.72 | 0.85 | 0.70 | 0.74 | 0.73 | 0.72 | 0.78 | | | | | | | |
| 5 Arith. mean, same years, 48 states (Table 32) | 0.74 | 0.71 | 0.71 | 0.81 | 0.69 | 0.60 | 0.71 | 0.72 | 0.76 | 0.64 | | | | | | | |
| Relative of Income, M+S Sector | | | | | | | | | | | | | | | | | |
| 6 1929, 36 states | 1.05 | 1.06 | 1.13 | 1.17 | 1.10 | 1.22 | 1.12 | 1.05 | 1.15 | 1.16 | | | | | | | |
| 7 1940, 36 states | 1.03 | 1.04 | 1.07 | 1.11 | 1.10 | 1.20 | 1.09 | 1.03 | 1.09 | 1.15 | | | | | | | |
| 8 1950, 36 states | 0.99 | 1.00 | 0.99 | 1.01 | 1.00 | 1.06 | 1.01 | 0.99 | 1.00 | 1.03 | | | | | | | |
| 9 Arith. mean, lines 6-8 | 1.02 | 1.03 | 1.06 | 1.10 | 1.07 | 1.16 | 1.07 | 1.03 | 1.08 | 1.11 | | | | | | | |
| 10 Arith. mean, same years, 48 states (Table 32) | 1.03 | 1.04 | 1.08 | 1.08 | 1.15 | 1.29 | 1.11 | 1.03 | 1.08 | 1.22 | | | | | | | |
| Ratio of Relatives, A/(M+S) | | | | | | | | | | | | | | | | | |
| 11 1929, 36 states | 0.56 | 0.50 | 0.53 | 0.53 | 0.73 | 0.56 | 0.57 | 0.53 | 0.53 | 0.64 | | | | | | | |
| 12 1940, 36 states | 0.68 | 0.57 | 0.62 | 0.56 | 0.70 | 0.54 | 0.61 | 0.62 | 0.59 | 0.62 | | | | | | | |
| 13 1950, 36 states | 1.06 | 0.92 | 0.95 | 0.94 | 1.01 | 0.73 | 0.94 | 0.99 | 0.94 | 0.87 | | | | | | | |
| 14 Arith. mean, lines 11-13 | 0.77 | 0.66 | 0.70 | 0.68 | 0.81 | 0.61 | 0.71 | 0.71 | 0.69 | 0.71 | | | | | | | |
| 15 Arith. mean, same years, 48 states (Table 32) | 0.73 | 0.69 | 0.66 | 0.77 | 0.61 | 0.47 | 0.65 | 0.71 | 0.71 | 0.54 | | | | | | | |
| Relative of Income, M Sector | | | | | | | | | | | | | | | | | |
| 16 1929, 36 states | 0.98 | 0.94 | 1.05 | 1.08 | 0.96 | 0.98 | 1.00 | 0.96 | 1.06 | 0.97 | | | | | | | |

| | | | | | | | | | | |
|---|------|------|------|------|------|------|------|-------|-------|-------|
| 14 Arith. mean, lines 11-13 | 0.77 | 0.66 | 0.70 | 0.68 | 0.81 | 0.61 | 0.71 | 0.69 | 0.71 | 0.54 |
| 15 Arith. mean, same years, 48 states (Table 32) | 0.73 | 0.69 | 0.66 | 0.77 | 0.61 | 0.65 | 0.71 | 0.71 | 0.71 | 0.54 |
| <u>Relative of Income, M Sector</u> | | | | | | | | | | |
| 16 1929, 36 states | 0.98 | 0.94 | 1.05 | 1.08 | 0.96 | 0.98 | 1.00 | 0.96 | 1.06 | 0.97 |
| 17 1940, 36 states | 0.94 | 0.94 | 0.94 | C.98 | 0.93 | 0.98 | 0.95 | 0.94 | 0.96 | 0.95 |
| 18 1950, 36 states | 1.02 | 1.05 | 1.04 | 1.04 | 1.00 | 1.09 | 1.04 | 1.03 | 1.05 | 1.04 |
| 19 Arith. mean, lines 16-18 | 0.98 | 0.98 | 1.01 | 1.04 | 0.96 | 1.02 | 1.00 | 0.98 | 1.02 | 0.99 |
| 20 Arith. mean, same years, 48 states (Table 32) | 0.98 | 0.98 | 1.03 | 0.97 | 1.03 | 1.12 | 1.02 | 0.98 | 1.00 | 1.08 |
| <u>Relative of Income, S Sector</u> | | | | | | | | | | |
| 21 1929, 36 states | 1.09 | 1.17 | 1.18 | 1.22 | 1.16 | 1.32 | 1.19 | 1.13 | 1.20 | 1.24 |
| 22 1940, 36 states | 1.07 | 1.12 | 1.17 | 1.18 | 1.16 | 1.28 | 1.16 | 1.09 | 1.18 | 1.22 |
| 23 1950, 36 states | 0.97 | 0.97 | 0.96 | 0.98 | 1.00 | 1.03 | 0.98 | 0.97 | 0.97 | 1.01 |
| 24 Arith. mean, lines 21-23 | 1.04 | 1.09 | 1.10 | 1.13 | 1.11 | 1.21 | 1.11 | 1.07 | 1.12 | 1.16 |
| 25 Arith. mean, same years, 48 states (Table 32) | 1.05 | 1.09 | 1.12 | 1.13 | 1.20 | 1.40 | 1.16 | 1.07 | 1.12 | 1.30 |
| <u>Ratio of Relatives, M/S</u> | | | | | | | | | | |
| 26 1929, 36 states | 0.91 | 0.80 | 0.90 | 0.89 | 0.82 | 0.75 | 0.84 | 0.86 | 0.90 | 0.78 |
| 27 1940, 36 states | 0.89 | 0.85 | 0.81 | 0.83 | 0.80 | 0.77 | 0.82 | 0.86 | 0.82 | 0.78 |
| 28 1950, 36 states | 1.04 | 1.09 | 1.09 | 1.09 | 1.00 | 1.07 | 1.06 | 1.06 | 1.09 | 1.03 |
| 29 Arith. mean, lines 26-28 | 0.95 | 0.91 | 0.93 | 0.94 | 0.87 | 0.86 | 0.91 | 0.93 | 0.93 | 0.87 |
| 30 Arith. mean, same years, 48 states (Table 32) | 0.94 | 0.91 | 0.93 | 0.87 | 0.88 | 0.82 | 0.89 | 0.92 | 0.90 | 0.85 |
| <u>Measure of Inequality Based on A, M, and S</u> | | | | | | | | | | |
| 31 1929, 36 states | 11.6 | 16.4 | 19.8 | 23.5 | 15.4 | 26.6 | 18.9 | 14.0 | 21.65 | 21.0 |
| 32 1940, 36 states | 10.8 | 13.5 | 16.8 | 20.0 | 16.8 | 25.5 | 17.2 | 12.15 | 18.4 | 21.15 |
| 33 1950, 36 states | 5.0 | 5.3 | 9.1 | 7.7 | 4.6 | 10.1 | 7.0 | 5.15 | 8.4 | 7.35 |
| 34 Arith. mean, lines 31-33 | 9.1 | 11.7 | 15.2 | 17.1 | 12.3 | 20.7 | 14.4 | 10.4 | 16.15 | 16.5 |
| 35 Arith. mean, same years, 48 states (Table 34) | 10.8 | 11.7 | 16.7 | 15.1 | 20.4 | 31.9 | 17.8 | 11.25 | 15.9 | 26.15 |

For states included in specific groups see App. Table 15.

For sources see notes to Tables 30 and 34.

Appendix Table 11.
Arithmetic Means of Relatives of Income per Worker in Components of the S Sector, and a Measure of Inequality, 48 States and 36 States, Exclusive of Those with Large Proportions of Negroes, Groups of States by Total Income per Capita, Average of 1929, 1940, and 1950 Estimates

| | Groups of States by Total Income per Capita | | | | | | Arith. Mean I- VI (Un- weighted) (7) | Wider Groups | | | | | | | | | | | |
|--|---|-----|-----|-----|-----|-----|--|--------------|-----|-----|------|------|------|------|------|--------|------|------|--|
| | I | | II | | III | | | IV | | V | | VI | | I+II | | III+IV | | V+VI | |
| | (1) | (2) | (3) | (4) | (5) | (6) | | (7) | (8) | (9) | (10) | (11) | (12) | (13) | (14) | (15) | (16) | (17) | |
| Relative of Income, T | | | | | | | | | | | | | | | | | | | |
| 1 | Arith. mean, 1929, 1940, and 1950, 36 states | | | | | | | | | | | | | | | | | | |
| 2 | Arith. mean, same years, 48 states (Table 33) | | | | | | | | | | | | | | | | | | |
| Relative of Income, C | | | | | | | | | | | | | | | | | | | |
| 3 | Arith. mean, 1929, 1940, and 1950, 36 states | | | | | | | | | | | | | | | | | | |
| 4 | Arith. mean, same years, 48 states (Table 33) | | | | | | | | | | | | | | | | | | |
| Relative of Income, T+C | | | | | | | | | | | | | | | | | | | |
| 5 | Arith. mean, 1929, 1940, and 1950, 36 states | | | | | | | | | | | | | | | | | | |
| 6 | Arith. mean, same years, 48 states (Table 33) | | | | | | | | | | | | | | | | | | |
| Relative of Income, OS | | | | | | | | | | | | | | | | | | | |
| 7 | Arith. mean, 1929, 1940, and 1950, 36 states | | | | | | | | | | | | | | | | | | |
| 8 | Arith. mean, same years, 48 states (Table 33) | | | | | | | | | | | | | | | | | | |
| Ratio of Relatives, (T+C)/OS | | | | | | | | | | | | | | | | | | | |
| 9 | Arith. mean, 1929, 1940, and 1950, 36 states | | | | | | | | | | | | | | | | | | |
| 10 | Arith. mean, same years, 48 states (Table 33) | | | | | | | | | | | | | | | | | | |
| Measure of Inequality Based on A, M, T, C, and OS | | | | | | | | | | | | | | | | | | | |
| 11 | 1929, 36 states | | | | | | | | | | | | | | | | | | |
| 12 | 1940, 36 states | | | | | | | | | | | | | | | | | | |
| 13 | 1950, 36 states | | | | | | | | | | | | | | | | | | |
| 14 | Arith. mean, lines 11-13 | | | | | | | | | | | | | | | | | | |
| 15 | Arith. mean, same years, 48 states (Table 34) | | | | | | | | | | | | | | | | | | |

For states included in specific groups see App. Table 15.
For sources see notes to Tables 30 and 34.

Appendix Table 12.
Changes in Relative Income per Worker in Three Major Sectors and in Components of the S Sector, and in Inequality, 1929 to 1950, 48 States and 37 States, Exclusive of Those with Large Proportions of Negroes, Groups of States by Rise in Total Income per Capita over the Period

| | Groups of States by Rise in Total Income per Capita | | | | | | | | | | Arith. Mean I- VI (Un- weighted) | Wider Groups | | | |
|---|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|---|--------------|--|--------|--|
| | I | | II | | III | | IV | | V | | | I+II | | III+IV | |
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | | | | | |
| <u>Relative of Income, A Sector</u> | | | | | | | | | | | | | | | |
| 1 Arith. mean, 1929, 37 states | 0.72 | 0.74 | 0.59 | 0.58 | 0.56 | 0.60 | 0.63 | 0.73 | 0.58 | 0.58 | | | | | |
| 2 Arith. mean, 1950, 37 states | 1.03 | 0.91 | 0.81 | 0.98 | 0.86 | 1.01 | 0.93 | 0.97 | 0.89 | 0.93 | | | | | |
| 3 Change, (2) - (1) | +0.31 | +0.17 | +0.22 | +0.40 | +0.30 | +0.41 | +0.30 | +0.24 | +0.31 | +0.35 | | | | | |
| 4 Change, same years, 48 states (Table 36) | +0.13 | +0.21 | +0.21 | +0.38 | +0.21 | +0.40 | +0.25 | +0.18 | +0.30 | +0.31 | | | | | |
| <u>Relative of Income, M+S Sector</u> | | | | | | | | | | | | | | | |
| 5 Arith. mean, 1929, 37 states | 1.22 | 1.15 | 1.15 | 1.11 | 1.06 | 1.04 | 1.12 | 1.18 | 1.13 | 1.05 | | | | | |
| 6 Arith. mean, 1950, 37 states | 0.98 | 1.02 | 1.03 | 1.00 | 1.01 | 1.01 | 1.01 | 1.00 | 1.01 | 1.01 | | | | | |
| 7 Change, (6) - (5) | -0.24 | -0.13 | -0.12 | -0.11 | -0.05 | -0.03 | -0.11 | -0.18 | -0.12 | -0.04 | | | | | |
| 8 Change, same years, 48 states (Table 36) | -0.23 | -0.31 | -0.13 | -0.13 | -0.06 | -0.04 | -0.15 | -0.26 | -0.13 | -0.05 | | | | | |
| <u>Ratio of Relatives, A/(M+S)</u> | | | | | | | | | | | | | | | |
| 9 Arith. mean, 1929, 37 states | 0.60 | 0.66 | 0.52 | 0.52 | 0.53 | 0.57 | 0.57 | 0.63 | 0.52 | 0.55 | | | | | |
| 10 Arith. mean, 1950, 37 states | 1.06 | 0.92 | 0.79 | 1.00 | 0.86 | 1.00 | 0.94 | 0.99 | 0.89 | 0.93 | | | | | |
| 11 Change, (10) - (9) | +0.46 | +0.26 | +0.27 | +0.48 | +0.33 | +0.43 | +0.37 | +0.36 | +0.37 | +0.38 | | | | | |
| 12 Change, same years, 48 states (Table 36) | +0.24 | +0.35 | +0.29 | +0.46 | +0.23 | +0.42 | +0.33 | +0.30 | +0.37 | +0.33 | | | | | |
| <u>Relative of Income, M Sector</u> | | | | | | | | | | | | | | | |
| 13 Arith. mean, 1929, 37 states | 0.95 | 1.03 | 1.04 | 1.04 | 0.98 | 0.96 | 1.00 | 0.99 | 1.04 | 0.97 | | | | | |
| 14 Arith. mean, 1950, 37 states | 1.02 | 1.07 | 1.09 | 1.05 | 1.03 | 1.02 | 1.05 | 1.04 | 1.07 | 1.02 | | | | | |
| 15 Change, (14) - (13) | +0.07 | +0.04 | +0.05 | +0.01 | +0.05 | +0.06 | +0.05 | +0.05 | +0.03 | +0.05 | | | | | |
| 16 Change, same years, 48 states (Table 36) | +0.05 | -0.13 | +0.04 | +0.05 | +0.07 | +0.06 | +0.02 | -0.04 | +0.04 | +0.07 | | | | | |

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(Continued on next page)

Relative of Income, S Sector

| 17 | Arith. mean, 1929, 37 states | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) |
|----|--|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 18 | Arith. mean, 1950, 37 states | 1.32 | 1.20 | 1.22 | 1.16 | 1.13 | 1.12 | 1.19 | 1.26 | 1.19 | 1.12 |
| 19 | Change, (18) - (17) | 0.97 | 0.98 | 1.00 | 0.96 | 0.99 | 1.00 | 0.98 | 0.98 | 0.98 | 1.00 |
| 20 | Change, same years, 48 states (Table 36) | -0.35 | -0.22 | -0.22 | -0.20 | -0.14 | -0.12 | -0.21 | -0.28 | -0.21 | -0.12 |
| | | -0.36 | -0.39 | -0.23 | -0.22 | -0.16 | -0.13 | -0.25 | -0.38 | -0.23 | -0.15 |

Ratio of Relatives, M/S

| | | | | | | | | | | |
|----|--|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 21 | Arith. mean, 1929, 37 states | 0.72 | 0.86 | 0.86 | 0.91 | 0.87 | 0.86 | 0.85 | 0.79 | 0.88 |
| 22 | Arith. mean, 1950, 37 states | 1.05 | 1.09 | 1.10 | 1.10 | 1.05 | 1.02 | 1.07 | 1.07 | 1.10 |
| 23 | Change, (22) - (21) | +0.33 | +0.23 | +0.24 | +0.19 | +0.18 | +0.16 | +0.22 | +0.28 | +0.22 |
| 24 | Change, same years, 48 states (Table 36) | +0.28 | +0.20 | +0.24 | +0.22 | +0.22 | +0.16 | +0.22 | +0.24 | +0.19 |

Relative of Income, T

| | | | | | | | | | | | |
|----|--|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 25 | Arith. mean, 1929, 37 states | 1.14 | 1.12 | 1.17 | 0.97 | 0.92 | 0.93 | 1.04 | 1.13 | 1.07 | 0.92 |
| 26 | Arith. mean, 1950, 37 states | 1.04 | 1.08 | 1.10 | 1.02 | 1.04 | 1.03 | 1.05 | 1.06 | 1.06 | 1.03 |
| 27 | Change, (26) - (25) | -0.10 | -0.04 | -0.07 | +0.05 | +0.12 | +0.10 | +0.01 | -0.07 | -0.01 | +0.11 |
| 28 | Change, same years, 48 states (Table 37) | -0.16 | -0.18 | -0.06 | -0.04 | +0.07 | +0.13 | -0.04 | -0.17 | -0.05 | +0.10 |

Relative of Income, C

| | Relative to income, | | | | | | | | | | |
|----|--|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 29 | Arith. mean, 1929, 37 states | 1.80 | 1.50 | 1.52 | 1.43 | 1.38 | 1.41 | 1.51 | 1.65 | 1.47 | 1.39 |
| 30 | Arith. mean, 1950, 37 states | 1.05 | 1.07 | 1.09 | 1.02 | 1.08 | 1.09 | 1.07 | 1.06 | 1.05 | 1.08 |
| 31 | Change, (30) - (29) | -0.75 | -0.43 | -0.43 | -0.41 | -0.30 | -0.32 | -0.44 | -0.59 | -0.42 | -0.31 |
| 32 | Change, same years, 48 states (Table 37) | -0.83 | -0.80 | -0.47 | -0.42 | -0.32 | -0.31 | -0.53 | -0.81 | -0.45 | -0.32 |

Relative of Income, T+C

| | Relative to income, 1929 | 1929, 37 states | 1950, 37 states | Change, (34) - (33) | Change, same years, 48 states (Table 37) | | | | | | |
|----|--|-----------------|-----------------|---------------------|--|-------|-------|-------|-------|-------|-------|
| 33 | Arith. mean, | 1.51 | 1.35 | 1.37 | 1.23 | 1.20 | 1.24 | 1.32 | 1.43 | 1.30 | 1.22 |
| 34 | Arith. mean, | 1.05 | 1.07 | 1.09 | 1.02 | 1.07 | 1.08 | 1.06 | 1.06 | 1.05 | 1.07 |
| 35 | Change, (34) - (33) | -0.46 | -0.28 | -0.28 | -0.21 | -0.13 | -0.16 | -0.26 | -0.37 | -0.25 | -0.15 |
| 36 | Change, same years, 48 states (Table 37) | -0.55 | -0.54 | -0.31 | -0.25 | -0.17 | -0.15 | -0.33 | -0.55 | -0.28 | -0.16 |

Relative of Income, OS

| | Relative Coefficients | | | | | | | | | | |
|----|--|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 37 | Arith. mean, 1929, 37 states | 1.09 | 1.00 | 1.01 | 1.05 | 1.02 | 0.97 | 1.02 | 1.04 | 1.03 | 1.00 |
| 38 | Arith. mean, 1950, 37 states | 0.88 | 0.86 | 0.88 | 0.87 | 0.88 | 0.90 | 0.88 | 0.87 | 0.88 | 0.89 |
| 39 | Change, (38) - (37) | -0.21 | -0.14 | -0.13 | -0.18 | -0.14 | -0.07 | -0.14 | -0.17 | -0.15 | -0.11 |
| 40 | Change, same years, 48 states (Table 37) | -0.20 | -0.23 | -0.13 | -0.16 | -0.15 | -0.09 | -0.16 | -0.21 | -0.15 | -0.12 |

| | | | | | | | | | | |
|---|-------|-------|-------|-------|-------|-------|-------|-------|--------|-------|
| 39 Change, (38) - (37) | -0.21 | -0.14 | -0.13 | -0.16 | -0.15 | -0.09 | -0.16 | -0.21 | -0.15 | -0.12 |
| 40 Change, same years, 48 states (Table 37) | -0.20 | -0.23 | -0.13 | -0.16 | -0.15 | -0.09 | -0.16 | -0.21 | -0.15 | -0.12 |
| Ratio of Relatives, (T+C)/OS | | | | | | | | | | |
| 41 Arith. mean, 1929, 37 states | 1.41 | 1.35 | 1.36 | 1.18 | 1.19 | 1.28 | 1.30 | 1.38 | 1.27 | 1.24 |
| 42 Arith. mean, 1950, 37 states | 1.21 | 1.25 | 1.25 | 1.19 | 1.22 | 1.20 | 1.22 | 1.23 | 1.22 | 1.21 |
| 43 Change, (42) - (41) | -0.20 | -0.10 | -0.11 | +0.01 | +0.03 | -0.08 | -0.08 | -0.15 | -0.05 | -0.03 |
| 44 Change, same years, 48 states (Table 37) | -0.27 | -0.21 | -0.13 | -0.07 | +0.03 | -0.04 | -0.12 | -0.24 | -0.10 | 0 |
| Measure of Inequality Based on A, M, and S | | | | | | | | | | |
| 45 Arith. mean, 1929, 37 states | 27.1 | 20.1 | 22.8 | 18.8 | 11.8 | 13.8 | 19.1 | 23.55 | 20.8 | 12.8 |
| 46 Arith. mean, 1950, 37 states | 5.1 | 11.6 | 7.1 | 10.0 | 5.4 | 3.8 | 7.2 | 8.35 | 8.55 | 4.6 |
| 47 Change, (46) - (45) | -22.0 | -8.5 | -15.7 | -8.8 | -6.4 | -10.0 | -11.9 | -15.2 | -12.25 | -8.2 |
| 48 Change, same years, 48 states (Table 36) | -23.1 | -21.9 | -11.5 | -15.3 | -6.9 | -9.6 | -14.7 | -22.5 | -13.4 | -8.25 |
| Measure of Inequality Based on A, M, T, C, and OS | | | | | | | | | | |
| 49 Arith. mean, 1929, 37 states | 28.1 | 21.5 | 23.7 | 20.5 | 14.2 | 16.8 | 20.8 | 24.8 | 22.1 | 15.5 |
| 50 Arith. mean, 1950, 37 states | 8.0 | 13.6 | 11.8 | 11.8 | 8.2 | 7.3 | 10.1 | 10.8 | 11.8 | 7.75 |
| 51 Change, (50) - (49) | -20.1 | -7.9 | -11.9 | -8.7 | -6.0 | -9.5 | -10.7 | -14.0 | -10.3 | -7.75 |
| 52 Change, same years, 48 states (Table 37) | -21.2 | -20.8 | -10.5 | -12.0 | -6.5 | -9.5 | -13.4 | -21.0 | -11.25 | -8.0 |

For states included in specific groups see App. Table 15.
For sources see notes to Tables 30 and 34.

APPENDIX B

REFERENCE TABLES

By far the largest body of data used here was taken from Personal Income by States since 1929, a supplement to the Survey of Current Business prepared in the Office of Business Economics of the U. S. Department of Commerce by Charles F. Schwartz and Robert E. Graham, Jr. (Washington, 1956).¹ We have taken these estimates as they stand, except to add income paid to members of armed forces and their dependents to the participation income given for the various states. It is therefore not necessary to show the basic data underlying the various percentage shares.

The reference tables are thus limited to the data which cannot easily be reconstructed from published sources or which involve the use of unpublished worksheets. Accordingly, Appendix Table 13 provides the reference data for 1919-21 taken in part from the estimates published in Maurice Leven, Income in the Various States (National Bureau of Economic Research, 1925), and in part from unpublished worksheets in the files of the National Bureau of Economic Research. Appendix Table 14 provides the data on the labor force for 1930 taken from the 1930 Census of Population, and for 1940 and 1950 from the estimates prepared by Ann R. Miller and Carol P. Brainerd in the University of Pennsylvania Study of Population Redistribution and Economic Growth (directed by Professor Dorothy S. Thomas and myself), and published in Population Redistribution and Economic Growth, United States, 1870-1950, Volume I, American Philosophical Society, Memoirs, Volume 45 (Philadelphia, 1957).

Appendix Table 15 shows the identity of the states included in the groups ranked by per capita income, participation income per worker, or by rate of growth of per capita income over various periods--either for all forty-eight states, or for the states excluding those with largest proportions of Negroes in total population. It can, therefore, be consulted whenever the composition of the groups is in question.

1. I am also indebted to Dr. Schwartz for unpublished estimates of participation income in five subdivisions of the services category for 1929, 1940, 1950, and 1955.

Appendix Table 13. Reference Data for 1919-1921

| | Personal Participa- | | Population (Thous.) | Labor Force (Thous.) | % Shares in | | |
|-------------------|----------------------|---------------------------|------------------------|----------------------------|-------------------------|------|------|
| | Income (Mill. \$) | tion Income (Mill. \$) | | | % Shares in Labor Force | | |
| | (1) | (2) | (3) | (4) | A | M | S |
| 1 Maine | 437.7 | 360.8 | 769.3 | 307.9 | 20.2 | 34.9 | 44.9 |
| 2 New Hampshire | 271.4 | 220.8 | 443.7 | 193.0 | 12.0 | 46.0 | 42.0 |
| 3 Vermont | 191.2 | 160.2 | 352.3 | 137.0 | 30.5 | 30.4 | 39.1 |
| 4 Massachusetts | 3,242.5 | 2,512.0 | 3,884.0 | 1,739.8 | 2.7 | 43.4 | 53.9 |
| 5 Rhode Island | 476.2 | 358.4 | 608.3 | 276.8 | 2.3 | 51.3 | 46.0 |
| 6 Connecticut | 1,012.3 | 761.9 | 1,398.7 | 592.7 | 6.4 | 56.5 | 37.1 |
| 7 New York | 9,878.5 | 7,458.9 | 10,469.7 | 4,519.5 | 5.8 | 30.9 | 63.3 |
| 8 New Jersey | 2,381.7 | 1,882.1 | 3,197.3 | 1,317.5 | 3.9 | 44.8 | 51.3 |
| 9 Pennsylvania | 6,036.3 | 4,854.3 | 8,789.7 | 3,426.7 | 6.6 | 49.0 | 44.4 |
| 10 Delaware | 146.9 | 106.7 | 224.0 | 90.5 | 13.2 | 40.8 | 46.0 |
| 11 Maryland | 977.5 | 754.6 | 1,460.0 | 599.2 | 9.5 | 29.3 | 61.2 |
| 12 Michigan | 2,450.4 | 2,026.6 | 3,726.7 | 1,456.0 | 14.0 | 44.5 | 41.5 |
| 13 Ohio | 3,783.6 | 3,126.1 | 5,826.0 | 2,287.2 | 10.9 | 44.1 | 45.0 |
| 14 Indiana | 1,588.8 | 1,357.4 | 2,944.3 | 1,097.9 | 17.3 | 37.2 | 45.6 |
| 15 Illinois | 4,994.7 | 3,951.5 | 6,541.3 | 2,609.7 | 10.0 | 35.2 | 54.8 |
| 16 Wisconsin | 1,487.8 | 1,284.4 | 2,651.0 | 963.2 | 31.5 | 32.7 | 35.8 |
| 17 Minnesota | 1,274.8 | 1,033.9 | 2,407.3 | 865.3 | 23.3 | 23.2 | 53.5 |
| 18 Iowa | 1,264.2 | 1,027.7 | 2,415.0 | 830.9 | 29.9 | 17.0 | 53.1 |
| 19 Missouri | 1,848.2 | 1,534.3 | 3,410.0 | 1,282.4 | 17.8 | 23.2 | 59.0 |
| 20 North Dakota | 276.9 | 249.3 | 651.3 | 193.6 | 55.8 | 4.5 | 39.8 |
| 21 South Dakota | 319.1 | 277.3 | 640.0 | 203.7 | 50.8 | 6.0 | 43.1 |
| 22 Nebraska | 672.0 | 543.5 | 1,303.0 | 439.9 | 31.0 | 14.6 | 54.4 |
| 23 Kansas | 969.0 | 806.9 | 1,774.0 | 605.9 | 32.6 | 17.3 | 50.2 |
| 24 Virginia | 904.6 | 774.5 | 2,325.0 | 797.4 | 24.8 | 23.7 | 51.5 |
| 25 West Virginia | 701.9 | 585.7 | 1,479.7 | 477.5 | 15.4 | 49.6 | 35.1 |
| 26 Kentucky | 902.9 | 781.6 | 2,424.0 | 792.6 | 27.4 | 22.4 | 50.2 |
| 27 Tennessee | 788.6 | 687.9 | 2,347.3 | 748.9 | 29.5 | 21.0 | 49.4 |
| 28 North Carolina | 847.3 | 752.8 | 2,582.7 | 773.1 | 43.1 | 22.4 | 34.5 |
| 29 South Carolina | 528.0 | 465.5 | 1,695.0 | 527.6 | 45.4 | 18.9 | 35.7 |
| 30 Georgia | 938.9 | 816.7 | 2,914.7 | 954.7 | 34.8 | 18.2 | 47.0 |
| 31 Florida | 395.1 | 319.0 | 983.0 | 373.6 | 20.1 | 27.9 | 52.0 |

32 Alabama

33 Mississippi

34 Louisiana

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|----------------|---------|---------|---------|---------|------|------|------|------|
| 30 Georgia | 938.9 | 816.7 | 2,914.7 | 954.7 | 34.8 | 16.2 | 30.0 | 40.6 |
| 31 Florida | 395.1 | 319.0 | 983.0 | 373.6 | 20.1 | 27.9 | 29.4 | 30.0 |
| 32 Alabama | 656.9 | 611.1 | 2,361.0 | 733.7 | 32.6 | 27.3 | 44.5 | 23.8 |
| 33 Mississippi | 470.5 | 421.9 | 1,789.7 | 555.0 | 49.2 | 14.7 | 60.9 | 13.8 |
| 34 Louisiana | 714.8 | 592.0 | 1,807.7 | 629.3 | 22.7 | 24.6 | 37.4 | 23.5 |
| 35 Arkansas | 538.6 | 474.3 | 1,764.0 | 529.3 | 45.2 | 14.9 | 56.9 | 13.7 |
| 36 Oklahoma | 955.1 | 786.7 | 2,053.0 | 633.5 | 34.0 | 16.2 | 40.0 | 16.7 |
| 37 Texas | 2,342.6 | 1,921.4 | 4,714.0 | 1,564.2 | 33.9 | 13.3 | 41.6 | 16.7 |
| 38 New Mexico | 161.1 | 143.5 | 362.3 | 118.9 | 35.7 | 15.1 | 40.3 | 13.7 |
| 39 Arizona | 218.3 | 189.9 | 343.0 | 130.4 | 22.1 | 25.2 | 43.1 | 16.0 |
| 40 Montana | 320.5 | 277.0 | 560.7 | 210.8 | 30.3 | 22.7 | 26.9 | 26.9 |
| 41 Idaho | 240.4 | 213.6 | 438.7 | 148.9 | 45.5 | 14.7 | 38.2 | 22.1 |
| 42 Wyoming | 163.2 | 142.1 | 198.0 | 80.9 | 34.6 | 25.2 | 45.3 | 17.4 |
| 43 Colorado | 635.7 | 527.1 | 949.0 | 361.4 | 25.3 | 19.1 | 30.8 | 28.2 |
| 44 Utah | 233.1 | 200.5 | 454.0 | 145.1 | 25.1 | 26.3 | 25.7 | 20.9 |
| 45 Washington | 971.8 | 806.9 | 1,370.3 | 577.7 | 21.1 | 27.9 | 26.4 | 29.1 |
| 46 Oregon | 541.6 | 450.6 | 791.0 | 320.2 | 27.0 | 22.9 | 21.9 | 34.5 |
| 47 Nevada | 67.6 | 58.9 | 77.3 | 37.6 | 23.1 | 26.1 | 27.5 | 28.0 |
| 48 California | 3,180.9 | 2,458.2 | 3,498.3 | 1,517.6 | 19.0 | 22.2 | 22.2 | 26.2 |
| | | | | | | | 17.6 | 27.0 |
| | | | | | | | 58.8 | 55.3 |

Col. 1: Average of estimates for 1919-21 given in Maurice Leven, *Income in the Various States, 1919, 1920, and 1921*, New York, National Bureau of Economic Research, 1925, Tables XLVI-XLVIII, pp. 260-265.

Col. 2: Average of estimates for 1919-21 derived as the sum of (a) farm income, given in *ibid.*, Tables XLVI-XLVIII, pp. 260-265; (b) total share of employees in mining, manufacturing, and construction, given in *ibid.*, Tables XI-XIII, pp. 114-116; (c) total share of employees in trade, transportation, and miscellaneous industries, given in *ibid.*, Tables XI-XIII, pp. 114-116; and (d) nonfarm income from the operation of business by individuals, given in *ibid.*, Table XXXVII, p. 226.

Col. 3: Average of estimates for 1919-21 given in *ibid.*, Table XLIII, pp. 253-255.

Col. 4: Sum for 1920 of (a) labor force in agriculture, (b) employees in mining, manufacturing, and construction, (c) employees in other industries, and (d) nonfarm entrepreneurs. (a) Labor force in agriculture is the sum of farmers and farm employees, the latter excluding home farm labor. The number of farmers is available from worksheets underlying Leven's estimates. The number of employees is derived by subtracting from the total labor force in agriculture, given in the 1920 Census of Occupations, Table 15, the number of home farm laborers (also reported there) and the number of farmers, described above. (b) The number of employees in mining, manufacturing, and construction was derived by subtracting from the total number of employees in 1920, given in Leven, *op. cit.*, Table XV, pp. 124-127, the number of employees in agriculture (see a, above) and the number of employees in the service industries (see c, below). (c) The number of employees in the service industries was derived as follows: From the 1920 Census of Occupations, Table 15, we obtained the numbers of male and female gainfully occupied in transportation, trade, public service, professional service, domestic and personal

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service, and clerical occupations. The number of females was adjusted to male equivalents by dividing by 1.9 (see Leven, op. cit., pp. 79-80) and then the ratio of males and females to male equivalents in the service industries was derived. This ratio applied to the number of male equivalents reported in Leven, op. cit., Table IX, pp. 108-109, yielded the number of employees in the service industries. (d) The number of nonfarm entrepreneurs in 1920 was obtained from Leven's unpublished worksheets.

Col. 5-7: Percentage distribution of the total in col. 2, with A covering the items described under (a) in the notes to col. 2, M covering the items described under (b), and S covering the items described under (c) and (d).

Col. 8-10: Percentage distribution of the total in col. 4, with A covering the items described under (a) in the notes to col. 4, M covering the items described under (b), and S covering the items described under (c) and (d).

Appendix Table 14. Reference Data for Labor Force, 1930, 1940, and 1950

| | Total Labor Force (Thous.) (1) | Percentage Distribution | | | | | | | | | |
|-----------------|--------------------------------------|---|----------|----------|---------------|----------|----------|----------|------------|------------|---------------------------------------|
| | | Manufacturing and Mechanical Industries | | | | | | | | | |
| | | A (2) | M (3) | S (4) | Mining (5) | T (6) | T (7) | C (8) | T+C (9) | OS (10) | Profes- sional Services (11) |
| 1930 | | | | | | | | | | | |
| 1 Maine | 308.6 | 21.0 | 35.8 | 43.2 | 0.8 | 35.0 | 10.3 | 13.6 | 23.9 | 19.4 | 7.3 |
| 2 New Hampshire | 192.7 | 13.0 | 48.0 | 39.0 | 0.5 | 47.5 | 8.4 | 12.1 | 20.5 | 18.5 | 7.2 |
| 3 Vermont | 141.2 | 28.3 | 31.2 | 40.5 | 2.0 | 29.2 | 9.6 | 11.8 | 21.4 | 19.1 | 6.9 |
| 4 Massachusetts | 1,814.3 | 3.6 | 47.5 | 48.9 | 0.2 | 47.3 | 8.4 | 18.4 | 26.8 | 22.3 | 8.7 |
| 5 Rhode Island | 297.2 | 3.4 | 56.2 | 40.4 | 0.1 | 56.1 | 6.5 | 15.5 | 22.0 | 18.4 | 6.6 |
| 6 Connecticut | 677.2 | 5.7 | 50.9 | 43.4 | 0.2 | 50.7 | 7.3 | 17.0 | 24.3 | 19.2 | 7.6 |
| 7 New York | 5,523.3 | 5.2 | 37.7 | 57.1 | 0.3 | 37.4 | 11.0 | 21.6 | 32.6 | 24.5 | 9.0 |
| 8 New Jersey | 1,712.1 | 4.1 | 44.8 | 51.1 | 0.3 | 44.5 | 10.8 | 19.9 | 30.7 | 20.4 | 7.6 |
| 9 Pennsylvania | 3,722.1 | 7.1 | 49.6 | 43.3 | 9.0 | 40.6 | 9.9 | 15.6 | 25.5 | 17.7 | 6.8 |
| 10 Delaware | 98.1 | 18.6 | 37.2 | 44.2 | 0.1 | 37.1 | 11.4 | 13.6 | 25.0 | 19.2 | 5.9 |
| 11 Maryland | 672.9 | 13.9 | 35.2 | 50.9 | 0.9 | 34.3 | 11.1 | 16.6 | 27.7 | 23.2 | 7.1 |
| 12 Michigan | 1,927.3 | 13.9 | 45.6 | 40.5 | 1.4 | 44.2 | 8.0 | 15.0 | 23.0 | 17.5 | 6.7 |
| 13 Ohio | 2,615.8 | 12.3 | 42.9 | 44.8 | 1.8 | 41.1 | 10.2 | 16.5 | 26.7 | 18.1 | 7.2 |
| 14 Indiana | 1,251.1 | 20.7 | 38.2 | 41.1 | 2.0 | 36.2 | 9.6 | 14.8 | 24.4 | 16.7 | 6.9 |
| 15 Illinois | 3,184.7 | 11.6 | 37.9 | 50.5 | 2.2 | 35.7 | 11.2 | 19.6 | 30.8 | 19.8 | 7.6 |
| 16 Wisconsin | 1,129.5 | 27.0 | 34.5 | 38.5 | 0.4 | 34.1 | 8.0 | 14.3 | 22.3 | 16.2 | 7.0 |
| 17 Minnesota | 992.8 | 32.0 | 21.7 | 46.3 | 1.5 | 20.2 | 10.1 | 16.8 | 26.9 | 19.4 | 8.5 |
| 18 Iowa | 912.8 | 37.5 | 18.9 | 43.6 | 1.1 | 17.8 | 10.1 | 15.7 | 25.8 | 17.9 | 8.4 |
| 19 Missouri | 1,428.0 | 26.5 | 27.5 | 46.0 | 1.4 | 26.1 | 10.2 | 17.3 | 27.5 | 18.5 | 6.8 |
| 20 North Dakota | 240.3 | 57.2 | 7.7 | 35.1 | 0.5 | 7.2 | 7.7 | 11.0 | 18.7 | 16.4 | 8.1 |
| 21 South Dakota | 247.7 | 54.1 | 10.0 | 35.9 | 0.8 | 9.2 | 7.4 | 11.9 | 19.3 | 16.6 | 8.4 |

[illegible]

| Total Labor Force(Thous.) | | Percentage Distribution | | | | | | | | | | |
|------------------------------|-------|-------------------------|------|------|--------|--------------------|-------------------|-----|------|------|------|-------------------|
| | | A | M | S | Mining | Manufac- turing | Con- struction | T | C | T+C | OS | Private Housh. |
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) |
| 1940 | 314.6 | 14.1 | 40.1 | 45.8 | 0.3 | 34.0 | 5.8 | 6.3 | 16.5 | 22.8 | 23.0 | 5.1 |
| 49 Maine | 195.3 | 9.0 | 47.3 | 43.7 | 0.2 | 40.5 | 6.6 | 5.1 | 16.0 | 21.1 | 22.6 | 4.7 |
| 50 New Hampshire | | | | | | | | | | | | |

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| 1940 | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) |
|-------------------|---------|------|------|------|------|------|-----|-----|------|------|------|------|
| 51 Vermont | 134.4 | 24.4 | 29.7 | 45.9 | 1.3 | 22.6 | 5.8 | 6.3 | 15.0 | 21.4 | 24.5 | 6.1 |
| 52 Massachusetts | 1,703.0 | 2.6 | 43.3 | 54.1 | 0.1 | 37.5 | 5.7 | 6.5 | 22.9 | 29.4 | 24.7 | 3.8 |
| 53 Rhode Island | 296.8 | 2.0 | 53.1 | 44.9 | 0.1 | 46.9 | 6.1 | 4.7 | 19.4 | 24.1 | 20.9 | 3.1 |
| 54 Connecticut | 736.7 | 3.8 | 50.0 | 46.2 | 0.1 | 43.8 | 6.1 | 4.9 | 19.6 | 24.5 | 21.8 | 4.2 |
| 55 New York | 5,676.8 | 4.1 | 34.6 | 61.3 | 0.2 | 27.9 | 6.5 | 8.2 | 26.0 | 34.2 | 27.1 | 4.7 |
| 56 New Jersey | 1,745.1 | 2.9 | 43.7 | 53.4 | 0.2 | 37.1 | 6.4 | 8.1 | 22.7 | 30.8 | 22.5 | 4.1 |
| 57 Pennsylvania | 3,675.7 | 5.7 | 47.1 | 47.2 | 7.6 | 33.2 | 6.3 | 7.6 | 19.2 | 26.8 | 20.6 | 4.2 |
| 58 Delaware | 110.2 | 13.7 | 37.3 | 49.0 | 0.1 | 29.4 | 7.8 | 7.9 | 17.5 | 25.4 | 23.7 | 6.7 |
| 59 Maryland | 738.4 | 10.5 | 33.7 | 55.8 | 0.6 | 26.6 | 6.5 | 8.5 | 20.4 | 28.9 | 26.9 | 6.3 |
| 60 Michigan | 1,988.1 | 11.4 | 44.7 | 43.9 | 0.9 | 38.6 | 5.2 | 5.5 | 18.9 | 24.4 | 19.3 | 3.4 |
| 61 Ohio | 2,558.5 | 10.6 | 40.8 | 48.6 | 1.6 | 33.6 | 5.6 | 7.5 | 20.3 | 27.8 | 20.9 | 4.0 |
| 62 Indiana | 1,241.8 | 17.4 | 37.2 | 45.4 | 1.3 | 30.4 | 5.5 | 7.1 | 18.9 | 26.0 | 19.4 | 3.5 |
| 63 Illinois | 3,130.8 | 9.5 | 35.9 | 54.6 | 1.8 | 29.0 | 5.1 | 8.9 | 23.7 | 32.6 | 22.0 | 3.4 |
| 64 Wisconsin | 1,146.8 | 25.1 | 31.4 | 43.5 | 0.3 | 26.0 | 5.1 | 5.8 | 18.1 | 32.9 | 19.5 | 3.6 |
| 65 Minnesota | 1,027.1 | 29.0 | 19.6 | 51.4 | 1.0 | 12.8 | 5.8 | 7.2 | 21.7 | 28.9 | 22.4 | 3.9 |
| 66 Iowa | 918.5 | 35.2 | 17.9 | 46.9 | 0.9 | 11.7 | 5.3 | 6.7 | 19.5 | 26.2 | 20.6 | 3.7 |
| 67 Missouri | 1,408.1 | 22.9 | 25.7 | 51.4 | 1.1 | 19.1 | 5.5 | 7.7 | 22.0 | 29.7 | 21.9 | 4.3 |
| 68 North Dakota | 215.9 | 52.9 | 6.4 | 40.7 | 0.5 | 2.6 | 3.3 | 5.2 | 15.3 | 20.5 | 20.1 | 3.7 |
| 69 South Dakota | 218.4 | 47.5 | 10.4 | 42.1 | 1.4 | 4.6 | 4.4 | 4.5 | 16.5 | 21.0 | 21.1 | 3.1 |
| 70 Nebraska | 462.9 | 36.6 | 12.3 | 51.1 | 0.2 | 7.1 | 5.0 | 8.0 | 20.5 | 28.5 | 22.7 | 3.6 |
| 71 Kansas | 626.1 | 30.8 | 17.4 | 51.8 | 2.8 | 9.3 | 5.3 | 8.6 | 20.1 | 28.7 | 22.9 | 3.8 |
| 72 Virginia | 986.8 | 24.3 | 29.0 | 46.7 | 2.7 | 20.4 | 5.9 | 6.9 | 14.6 | 21.5 | 25.4 | 6.6 |
| 73 West Virginia | 573.9 | 15.3 | 45.6 | 39.1 | 22.3 | 17.8 | 5.5 | 7.5 | 13.7 | 21.2 | 18.1 | 4.3 |
| 74 Kentucky | 925.4 | 35.5 | 25.2 | 39.3 | 7.4 | 12.3 | 5.5 | 6.3 | 14.4 | 20.7 | 18.5 | 4.6 |
| 75 Tennessee | 1,007.8 | 32.5 | 25.6 | 41.9 | 1.6 | 18.6 | 5.4 | 5.5 | 15.5 | 21.0 | 21.0 | 6.7 |
| 76 North Carolina | 1,270.4 | 33.4 | 32.1 | 34.5 | 0.3 | 27.5 | 4.3 | 3.5 | 11.9 | 15.4 | 19.2 | 6.5 |
| 77 South Carolina | 685.3 | 39.0 | 27.2 | 33.8 | 0.2 | 23.1 | 3.9 | 2.9 | 10.7 | 13.6 | 20.0 | 8.0 |
| 78 Georgia | 1,163.8 | 34.2 | 23.7 | 42.1 | 0.4 | 18.9 | 4.4 | 4.7 | 13.7 | 18.4 | 23.6 | 9.4 |
| 79 Florida | 738.7 | 18.1 | 20.1 | 61.8 | 0.4 | 12.1 | 7.6 | 6.6 | 23.5 | 30.1 | 31.8 | 9.7 |
| 80 Alabama | 952.2 | 38.9 | 25.4 | 35.7 | 3.5 | 17.7 | 4.2 | 4.4 | 11.6 | 16.0 | 19.7 | 7.8 |
| 81 Mississippi | 763.2 | 56.7 | 14.1 | 29.2 | 0.3 | 9.6 | 4.2 | 3.2 | 9.2 | 12.4 | 17.0 | 6.8 |
| 82 Louisiana | 832.9 | 31.7 | 20.9 | 47.4 | 2.0 | 13.3 | 5.6 | 6.7 | 16.7 | 23.4 | 24.0 | 8.4 |
| 83 Arkansas | 626.3 | 50.5 | 15.6 | 33.9 | 1.4 | 10.2 | 4.0 | 4.3 | 12.3 | 16.6 | 17.4 | 5.1 |
| 84 Oklahoma | 732.5 | 32.7 | 19.0 | 48.3 | 5.7 | 7.8 | 5.5 | 5.1 | 19.7 | 24.8 | 23.5 | 4.6 |
| 85 Texas | 2,315.0 | 29.2 | 19.1 | 51.7 | 3.0 | 10.0 | 6.1 | 6.5 | 20.5 | 27.0 | 24.7 | 6.6 |
| 86 New Mexico | 159.4 | 32.5 | 21.0 | 46.5 | 6.4 | 6.4 | 8.2 | 6.8 | 16.2 | 23.0 | 23.5 | 4.1 |
| 87 Arizona | 168.2 | 21.9 | 24.0 | 54.1 | 9.5 | 9.2 | 7.3 | 7.5 | 19.8 | 27.3 | 26.7 | 4.2 |
| 88 Montana | 207.1 | 31.3 | 22.1 | 46.6 | 7.7 | 7.6 | 6.8 | 8.2 | 17.5 | 25.7 | 23.7 | 2.3 |

| | | | | | | | | | | | | |
|-------------------|---------|------|------|------|------|------|-----|------|------|------|------|-----|
| 85 Texas | 2,315.0 | 29.2 | 19.1 | 51.7 | 3.0 | 10.0 | 6.1 | 6.5 | 20.5 | 27.0 | 24.7 | 6.6 |
| 86 New Mexico | 159.4 | 32.5 | 21.0 | 46.5 | 6.4 | 6.4 | 8.2 | 6.8 | 16.2 | 23.0 | 23.5 | 4.1 |
| 87 Arizona | 168.2 | 21.9 | 24.0 | 54.1 | 8.5 | 8.2 | 7.3 | 7.5 | 19.8 | 27.3 | 26.7 | 4.2 |
| 88 Montana | 207.1 | 31.3 | 22.1 | 46.6 | 7.7 | 7.6 | 6.8 | 8.2 | 17.5 | 25.7 | 21.1 | 2.3 |
| 89 Idaho | 177.0 | 36.0 | 19.4 | 44.6 | 4.2 | 9.4 | 5.8 | 6.9 | 17.9 | 24.8 | 20.0 | 2.4 |
| 90 Wyoming | 94.8 | 28.9 | 19.0 | 52.1 | 7.3 | 5.6 | 6.1 | 10.8 | 15.7 | 26.5 | 25.5 | 2.4 |
| 91 Colorado | 386.0 | 21.1 | 21.6 | 57.3 | 5.0 | 10.2 | 6.4 | 8.5 | 22.4 | 30.9 | 26.3 | 3.5 |
| 92 Utah | 164.9 | 19.3 | 25.2 | 55.5 | 7.2 | 10.9 | 7.1 | 10.5 | 22.1 | 32.6 | 22.9 | 1.9 |
| 93 Washington | 671.9 | 14.2 | 30.5 | 55.3 | 1.0 | 22.2 | 7.3 | 8.6 | 22.5 | 31.1 | 24.2 | 3.0 |
| 94 Oregon | 430.5 | 18.3 | 29.1 | 52.6 | 0.8 | 21.7 | 6.6 | 7.9 | 21.8 | 29.7 | 22.9 | 3.1 |
| 95 Nevada | 45.6 | 14.7 | 29.2 | 56.1 | 16.1 | 4.5 | 8.6 | 12.5 | 18.1 | 30.6 | 25.4 | 2.0 |
| 96 California | 2,813.3 | 10.8 | 25.6 | 63.6 | 1.9 | 16.7 | 7.0 | 7.7 | 26.5 | 34.2 | 29.4 | 3.4 |
| 1950 | | | | | | | | | | | | |
| 97 Maine | 344.9 | 10.6 | 41.7 | 47.7 | 0.2 | 35.4 | 6.1 | 7.2 | 18.5 | 25.7 | 22.0 | 2.2 |
| 98 New Hampshire | 217.2 | 6.2 | 47.9 | 45.9 | 0.1 | 41.1 | 6.7 | 5.7 | 18.1 | 23.8 | 22.1 | 2.0 |
| 99 Vermont | 145.4 | 17.9 | 32.5 | 49.6 | 1.4 | 25.1 | 6.0 | 6.9 | 18.2 | 25.1 | 24.5 | 3.2 |
| 100 Massachusetts | 1,959.3 | 1.8 | 43.6 | 54.6 | 0.1 | 37.5 | 6.0 | 6.9 | 23.3 | 30.2 | 24.3 | 1.6 |
| 101 Rhode Island | 343.9 | 1.4 | 48.6 | 50.0 | 0.1 | 42.8 | 5.7 | 5.4 | 19.9 | 25.3 | 24.7 | 1.3 |
| 102 Connecticut | 880.8 | 2.7 | 49.2 | 48.1 | 0.1 | 42.9 | 6.2 | 5.3 | 21.4 | 26.7 | 21.5 | 1.9 |
| 103 New York | 6,344.7 | 2.8 | 36.2 | 61.0 | 0.2 | 30.4 | 5.6 | 8.9 | 26.7 | 35.6 | 25.5 | 2.4 |
| 104 New Jersey | 2,099.0 | 2.3 | 44.3 | 53.4 | 0.2 | 37.6 | 6.5 | 8.2 | 22.7 | 30.9 | 22.4 | 2.1 |
| 105 Pennsylvania | 4,166.4 | 3.9 | 46.7 | 49.4 | 5.0 | 35.8 | 5.9 | 8.5 | 20.5 | 29.0 | 20.3 | 2.0 |
| 106 Delaware | 131.1 | 8.6 | 41.6 | 49.8 | 0.1 | 32.9 | 8.6 | 7.8 | 19.5 | 27.3 | 22.5 | 3.9 |
| 107 Maryland | 971.0 | 6.1 | 32.5 | 61.4 | 0.3 | 24.5 | 7.7 | 8.9 | 21.9 | 30.8 | 30.5 | 3.5 |
| 108 Michigan | 2,536.3 | 6.5 | 47.4 | 46.1 | 0.6 | 41.6 | 5.2 | 6.3 | 20.3 | 26.6 | 19.4 | 1.7 |
| 109 Ohio | 3,204.9 | 6.7 | 43.5 | 49.8 | 1.0 | 36.9 | 5.6 | 7.9 | 21.3 | 29.2 | 20.6 | 1.9 |
| 110 Indiana | 1,567.3 | 11.4 | 41.6 | 47.0 | 1.0 | 35.2 | 5.4 | 7.5 | 20.4 | 27.9 | 19.1 | 1.8 |
| 111 Illinois | 3,725.0 | 6.8 | 38.5 | 54.7 | 1.2 | 32.2 | 5.1 | 9.4 | 23.5 | 32.9 | 21.7 | 1.6 |
| 112 Wisconsin | 1,397.2 | 18.5 | 36.4 | 45.1 | 0.2 | 31.0 | 5.2 | 6.4 | 19.9 | 26.3 | 18.8 | 1.5 |
| 113 Minnesota | 1,186.9 | 22.4 | 24.0 | 53.6 | 1.4 | 16.6 | 6.0 | 8.5 | 23.3 | 31.8 | 21.7 | 1.6 |
| 114 Iowa | 1,022.2 | 28.4 | 21.6 | 50.0 | 0.3 | 15.5 | 5.8 | 7.1 | 22.4 | 29.5 | 20.5 | 1.7 |
| 115 Missouri | 1,576.2 | 17.5 | 28.7 | 53.8 | 0.6 | 22.3 | 5.8 | 9.0 | 23.3 | 32.3 | 21.5 | 2.0 |
| 116 North Dakota | 232.4 | 44.2 | 9.2 | 46.6 | 0.4 | 3.0 | 5.8 | 7.2 | 19.7 | 26.9 | 19.7 | 1.2 |
| 117 South Dakota | 251.9 | 40.1 | 12.7 | 47.2 | 1.1 | 4.9 | 6.7 | 5.4 | 19.8 | 25.2 | 21.9 | 1.3 |
| 118 Nebraska | 526.4 | 29.5 | 16.2 | 54.3 | 0.2 | 9.3 | 6.7 | 9.3 | 22.8 | 32.1 | 22.1 | 1.5 |
| 119 Kansas | 738.5 | 22.4 | 22.0 | 55.6 | 2.1 | 12.6 | 7.3 | 9.6 | 22.2 | 31.8 | 23.7 | 1.7 |
| 120 Virginia | 1,304.2 | 13.6 | 28.3 | 58.1 | 2.3 | 19.1 | 6.9 | 7.3 | 17.7 | 25.0 | 33.2 | 3.7 |
| 121 West Virginia | 658.8 | 9.6 | 46.3 | 44.1 | 21.6 | 19.2 | 5.5 | 8.6 | 17.3 | 25.9 | 18.1 | 2.0 |

(Continued on next page)

| 1950 | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) |
|--------------------|---------|------|------|------|-----|------|------|------|------|------|------|------|
| 122 Kentucky | 1,012.0 | 25.1 | 29.0 | 45.9 | 7.3 | 15.8 | 5.9 | 7.6 | 17.5 | 25.1 | 20.8 | 2.5 |
| 123 Tennessee | 1,197.5 | 21.3 | 29.9 | 48.8 | 1.3 | 21.3 | 7.3 | 6.7 | 19.3 | 26.0 | 22.7 | 3.7 |
| 124 North Carolina | 1,552.6 | 24.0 | 34.0 | 42.0 | 0.2 | 27.9 | 5.9 | 4.4 | 15.7 | 20.1 | 21.9 | 3.9 |
| 125 South Carolina | 797.2 | 25.5 | 33.7 | 40.8 | 0.2 | 27.8 | 5.7 | 3.9 | 15.1 | 19.0 | 21.8 | 5.4 |
| 126 Georgia | 1,335.3 | 21.1 | 29.0 | 49.9 | 0.4 | 22.8 | 5.8 | 6.0 | 18.2 | 24.2 | 25.7 | 6.0 |
| 127 Florida | 1,097.8 | 12.1 | 20.1 | 67.8 | 0.5 | 10.5 | 9.1 | 7.5 | 26.8 | 34.3 | 33.4 | 5.2 |
| 128 Alabama | 1,084.4 | 23.9 | 30.5 | 45.6 | 2.8 | 22.1 | 5.6 | 5.8 | 17.0 | 22.8 | 22.7 | 5.5 |
| 129 Mississippi | 755.9 | 40.8 | 18.6 | 40.6 | 0.5 | 12.7 | 5.4 | 4.3 | 14.5 | 18.8 | 21.7 | 4.8 |
| 130 Louisiana | 928.4 | 17.4 | 26.0 | 56.6 | 2.8 | 15.3 | 7.9 | 8.8 | 21.9 | 30.7 | 26.0 | 5.1 |
| 131 Arkansas | 647.5 | 34.9 | 21.4 | 43.7 | 1.2 | 14.1 | 6.1 | 5.8 | 17.8 | 23.6 | 20.2 | 3.1 |
| 132 Oklahoma | 796.3 | 20.1 | 23.3 | 56.6 | 5.4 | 9.8 | 8.1 | 7.0 | 22.8 | 29.8 | 26.8 | 2.3 |
| 133 Texas | 2,970.4 | 15.3 | 25.1 | 59.6 | 3.2 | 13.2 | 8.7 | 8.0 | 24.0 | 32.0 | 27.6 | 3.6 |
| 134 New Mexico | 229.7 | 17.8 | 22.0 | 60.2 | 5.0 | 5.7 | 11.3 | 8.0 | 20.3 | 28.3 | 31.9 | 2.4 |
| 135 Arizona | 265.2 | 14.5 | 21.8 | 63.7 | 4.3 | 8.7 | 8.8 | 8.7 | 24.3 | 33.0 | 30.8 | 2.6 |
| 136 Montana | 231.7 | 24.7 | 20.6 | 54.7 | 4.4 | 8.8 | 7.4 | 10.3 | 21.4 | 31.7 | 23.1 | 1.3 |
| 137 Idaho | 218.2 | 26.6 | 20.7 | 52.7 | 2.6 | 9.9 | 8.2 | 9.1 | 21.6 | 30.7 | 22.0 | 1.6 |
| 138 Wyoming | 119.5 | 19.2 | 22.0 | 58.8 | 7.7 | 5.8 | 8.5 | 12.3 | 18.3 | 30.6 | 28.2 | 1.4 |
| 139 Colorado | 512.6 | 14.6 | 22.2 | 63.2 | 2.2 | 12.0 | 8.0 | 9.3 | 24.1 | 33.4 | 29.7 | 1.8 |
| 140 Utah | 242.8 | 12.2 | 25.5 | 62.3 | 5.3 | 12.3 | 7.9 | 9.6 | 23.7 | 33.3 | 28.9 | 1.2 |
| 141 Washington | 956.5 | 9.3 | 29.2 | 61.5 | 0.5 | 20.4 | 8.3 | 8.8 | 23.1 | 31.9 | 29.7 | 1.6 |
| 142 Oregon | 618.9 | 12.2 | 31.6 | 56.2 | 0.3 | 23.2 | 8.1 | 8.6 | 23.9 | 32.5 | 23.7 | 1.8 |
| 143 Nevada | 70.9 | 9.4 | 18.8 | 71.8 | 5.2 | 4.9 | 8.7 | 11.3 | 21.9 | 33.2 | 38.5 | 1.7 |
| 144 California | 4,405.3 | 7.0 | 27.6 | 65.4 | 0.8 | 19.1 | 7.7 | 7.8 | 26.0 | 33.8 | 31.4 | 2.1 |

Col. 1: 1930 - Census of Population, 1930, Vol. IV, Table 8.

1940 and 1950 - Population Redistribution and Economic Growth, United States, 1870-1950, I, Table L-5, pp. 623-631.

Col. 2-12: Percentage distribution of col. 1 excluding labor force for which industry was not specified. Absolute data are given in sources cited for col. 1.

Appendix Table 15. State Groupings by Level of or Percentage Rise in Income per Unit

| | By Total Income per Capita | | | | By Participation Income per Worker | | | | By Rise in Total Income per Capita | | | | |
|-------------------|----------------------------|----------|----------|----------|------------------------------------|------|------|------|------------------------------------|------|--------------|--------------|----------|
| | 1919-21 | 1929 | 1940 | 1950 | 1919-21 | 1929 | 1940 | 1950 | 1919-21 | 1929 | 1929 to 1950 | 1929 to 1950 | |
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | (13) |
| 1 Maine | III(IV) | III(IV) | III(IV) | V(VI) | IV | V | IV | IV | V | VI | IV | IV | V (V) |
| 2 New Hampshire | III(III) | II(III) | III(III) | IV (V) | III | V | III | IV | V | VI | V | V | VI (V) |
| 3 Vermont | IV(IV) | III(IV) | IV(IV) | V(VI) | IV | V | IV | IV | V | VI | VI | VI | VI(VI) |
| 4 Massachusetts | I (II) | I (II) | I (II) | II (III) | II | I | I | II | III | VI | V | VI | VI(VI) |
| 5 Rhode Island | I (II) | II (II) | II (II) | II (III) | II | III | II | IV | IV | VI | VI | VI | VI(VI) |
| 6 Connecticut | II (II) | I (II) | I (II) | I (II) | I | III | I | I | I | II | III | VI | VI(VI) |
| 7 New York | I (II) | I (II) | I (II) | I (II) | I | I | I | I | I | VI | VI | VI | VI(VI) |
| 8 New Jersey | I (III) | I (II) | I (II) | I (II) | I | II | I | I | II | IV | V | V | V (V) |
| 9 Pennsylvania | II (III) | II (II) | II(III) | III(III) | II | II | II | II | II | V | VI | VI | V (V) |
| 10 Delaware | II(III) | I (II) | I (II) | I | I | V | II | I | I | I | V | V | V(IV) |
| 11 Maryland | II | II | II | II | II | III | III | II | II | IV | V | V | V |
| 12 Michigan | II(III) | II (II) | II (II) | I (III) | I | II | II | I | I | III | IV | IV | V(IV) |
| 13 Ohio | III(III) | II (II) | II (II) | II (III) | II | II | I | II | II | IV | V | V | V (V) |
| 14 Indiana | IV (V) | III(IV) | III(IV) | III(III) | II | IV | III | II | II | III | III | III | III (II) |
| 15 Illinois | I (II) | I (II) | I (II) | I (II) | I | I | I | I | I | II | IV | VI | VI (V) |
| 16 Wisconsin | III(IV) | III(III) | III(III) | III(III) | III | III | II | III | III | III | V | V | V(IV) |
| 17 Minnesota | IV (V) | III(IV) | III(IV) | III(IV) | III | V | III | IV | IV | III | III | III | IV(III) |
| 18 Iowa | IV (V) | IV (V) | IV (V) | III(IV) | IV | IV | III | IV | III | IV | III | III | IV(III) |
| 19 Missouri | IV (V) | III(IV) | III(IV) | III(IV) | III | IV | IV | IV | II | III | III | III | IV(III) |
| 20 North Dakota | V(VI) | VI(VI) | V(VI) | IV (V) | V | III | V | V | IV | I | I | I | I (I) |
| 21 South Dakota | IV(VI) | V(VI) | V(VI) | V (V) | VI | III | V | V | V | VI | III | III | I (I) |
| 22 Nebraska | IV (V) | IV (V) | IV (V) | III(III) | IV | IV | III | V | III | II | V | V | III (II) |
| 23 Kansas | III(IV) | IV (V) | V (V) | IV(IV) | IV | III | IV | IV | IV | IV | III | III | II (I) |
| 24 Virginia | V | V | IV | V | V | V | V | IV | V | I | I | I | I |
| 25 West Virginia | V(VI) | V(VI) | V(VI) | V(VI) | V | IV | IV | III | IV | V | III | III | III(III) |
| 26 Kentucky | VI(VI) | VI(VI) | VI(VI) | VI(VI) | VI | V | V | VI | VI | III | II | II | III (II) |
| 27 Tennessee | VI | VI | VI | VI | VI | VI | VI | VI | I | I | II | II | II |
| 28 North Carolina | VI | VI | VI | VI | VI | V | VI | VI | I | I | I | I | I |

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(Continued on next page)

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | (13) |
|-------------------|----------|----------|----------|---------|-----|-----|-----|-----|-----|------|------|------|----------|
| 29 South Carolina | VI | VI | VI | VI | VI | VI | VI | VI | VI | II | II | I | I |
| 30 Georgia | VI | VI | VI | VI | V | VI | VI | VI | VI | I | I | I | I |
| 31 Florida | V | IV | IV | IV | III | VI | V | V | V | I | I | II | III |
| 32 Alabama | VI | VI | VI | VI | VI | VI | VI | VI | VI | I | I | I | II |
| 33 Mississippi | VI | VI | VI | VI | VI | VI | VI | VI | VI | I | II | II | II |
| 34 Louisiana | V | V | V | V | V | VI | VI | V | V | II | II | II | II |
| 35 Arkansas | VI | VI | VI | VI | VI | VI | VI | VI | VI | II | III | I | II |
| 36 Oklahoma | V(VI) | V(VI) | V(VI) | V(VI) | V | IV | V | V | V | III | IV | II | III(II) |
| 37 Texas | V | V | V | IV(IV) | IV | IV | V | V | IV | II | II | II | I(II) |
| 38 New Mexico | V(VI) | V(VI) | V(VI) | V(VI) | V | IV | V | IV | IV | III | III | I | I(II) |
| 39 Arizona | III(III) | IV(V) | IV(V) | IV(V) | IV | I | III | III | III | III | VI | I | I(II) |
| 40 Montana | III(IV) | IV(IV) | III(III) | II(III) | II | III | IV | III | I | III | II | IV | IV(IV) |
| 41 Idaho | III(IV) | IV(V) | IV(V) | IV(V) | V | II | IV | III | IV | V | V | III | II(II) |
| 42 Wyoming | I(II) | III(III) | II(III) | II(II) | III | I | II | II | II | VI | VI | V | III(III) |
| 43 Colorado | II(III) | III(III) | III(IV) | III(IV) | III | I | IV | III | III | VI | V | IV | IV(III) |
| 44 Utah | IV(V) | IV(V) | IV(V) | IV(V) | IV | II | II | II | III | IV | IV | III | IV(III) |
| 45 Washington | II(II) | II(III) | II(II) | II(II) | II | II | II | II | II | V | V | IV | IV(IV) |
| 46 Oregon | II(III) | II(III) | II(III) | II(III) | III | II | III | III | II | V | V | IV | IV(III) |
| 47 Nevada | I(II) | I(II) | I(II) | I(II) | I | I | I | I | I | V | V | IV | IV(IV) |
| 48 California | I(II) | I(II) | I(II) | I(II) | I | I | I | I | I | VI | VI | VI | VI(VI) |

States were ranked and grouped by decreasing order of size of the unit of grouping. Numerals in parentheses are for the thirty-six or thirty-seven states excluding those with the largest proportions of Negroes in total population.

Col. 1: Based on Appendix Table 13, col. 1 and 3.

Col. 2-5: Based on Personal Income by States since 1929, U.S. Dept. of Commerce, 1956, Table 2, pp. 142-143.

Col. 6: Based on Appendix Table 13, col. 2 and 4.

Col. 7-9: Based on per worker income derived by dividing participation income by labor force as given in Appendix Table 14, col. 1. Participation income is the total given in *ibid.*, Tables 64, 66, and 69 adjusted to include earnings of military personnel, given in *ibid.*, Tables 6-11, 13-17, 20-24, 26-32, 34-45, 47-50, 52-56, and 58-61.

Col. 10-13: Based on the per capita income underlying col. 1, 2, 4, and 5.



